

RDO PROCESSING, LLC.  
FACILITY-WIDE TIER II PERMIT APPLICATION

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State Air Program

SUBMITTED TO:  
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ORIGINAL

MAY 4, 2006

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**ORIGINAL**

RDO PROCESSING, LLC.  
FACILITY-WIDE TIER II PERMIT APPLICATION

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## 1.0 INTRODUCTION AND OVERVIEW

### 1.1 Introduction

RDO Processing, LLC. (RDO) processes dehydrated potato products at its plant in Hamer, Idaho. RDO is submitting this Facility-Wide Tier II permit application to operate its main boiler (Boiler No. 1) on high sulfur residual fuel (1.75% or less sulfur by weight) or propane fuel. Currently, the boiler is permitted to burn low sulfur fuel with a sulfur content of 0.5% or less as well as propane, natural gas and diesel fuel. The potato processing plant referenced herein was previously owned by Mr. Blaine Larsen and operated under the facility name Blaine Larsen Farms Dehydration Division (Larsen).

The main boiler at the facility was installed in 1996 and was rated at 115,000 lb/hr steam, or 144 MMBTU/hr. In July 2005, under the Larsen ownership, the boiler was derated to less than 100 MMBTU/hr. For this application, however, RDO is requesting the boiler be permitted under the maximum rating of 150 MMBTU/hr, as RDO will be re-rating the boiler to operate at its original rating configuration. The re-rating is not considered a modification as defined under 40 CFR 60.14 due to the exemption under (e)(2) of the same regulation. Under the exemption an increase in production rate of an existing facility is not considered to be a modification, if the increase can be accomplished without a capital expenditure on the facility. RDO will be re-rating the boiler to increase production. However, since all of the necessary equipment is already available at the facility, the re-rating will not require capital expenditure. Furthermore, the re-rating will put the boiler back to its original configuration and heat input capacity. In addition, the boiler has always had the capability to burn #6 fuel, so re-rating would not trigger a modification due to a change in the method of operation. Also, shortly after the change of ownership at the now RDO facility, new NSPS requirements were made final (February 27, 2006). The new regulations apply to sources that commenced construction, reconstruction, or modification after February 28, 2005. RDO will be re-rating the boiler back to pre-February 28, 2005 configuration, and therefore will not be subject to the new standards under the NSPS Subpart Db. At any one time, RDO would like the flexibility to operate its boiler on propane in addition to high sulfur residual fuel.

RDO has several other combustion and process emission sources that will be included with this permit application. The facility-wide potential to emit with the proposed changes is shown below in Table 1-1:

**Table 1-1 Potential to Emit**

CO	NO <sub>x</sub>	SO <sub>2</sub>	PM	PM <sub>10</sub>	VOC
33.42 tpy	232.6 tpy	127.87 tpy	223.71 tpy	223.43 tpy	6.53 tpy

The plant is currently a Title V major source for NO<sub>x</sub> and SO<sub>2</sub>. With the proposed modifications, RDO will be a Title V major source for PM-10 in addition to NO<sub>x</sub> and SO<sub>2</sub>. The plant is a PSD minor source.

With the submittal of this facility-wide application, RDO requests that the Idaho Department of Environmental Quality (DEQ) issue a Facility-Wide Tier II Operating Permit for the main boiler and all other equipment at the facility.

## **1.2 Project Overview**

RDO is proposing to operate its boiler on high sulfur residual fuel, diesel fuel, or propane. RDO is currently operating under PTC/ Tier II Permit # P-040524 and Consent Order Case No. E-050009, which took effect on June 27, 2005.

This application is divided into the following sections:

Section 2.0 – Facility Classification: provides general information about the facility, including Section 1 of the PTC application with a certified signature.

Section 3.0 – Process Description: describes the RDO process and combustion sources.

Section 4.0 – Regulatory Applicability Analysis: presents the state and Federal air quality regulations that apply to the proposed modification and, equally important, the regulations that do not apply.

Section 5.0 – Emissions Information and Documentation: presents detailed emission calculations, and explanations of assumptions and conventions used in determining short and long term emission levels.

Section 6.0 – Ambient Air Quality Impact Analysis: presents the ambient air quality impact analysis results demonstrating that the proposed boiler modification and existing sources will not adversely impact the local airshed.

Section 7.0 – Demonstration of Pre-construction Compliance with Toxic Standards: provides an analysis of the potential impact to the ambient air from any toxic air pollutants (TAPs).

Section 8.0 – Proposed Permit Conditions: requested permit conditions to be incorporated into the final permit issued to RDO.

## **2.0 FACILITY CLASSIFICATION**

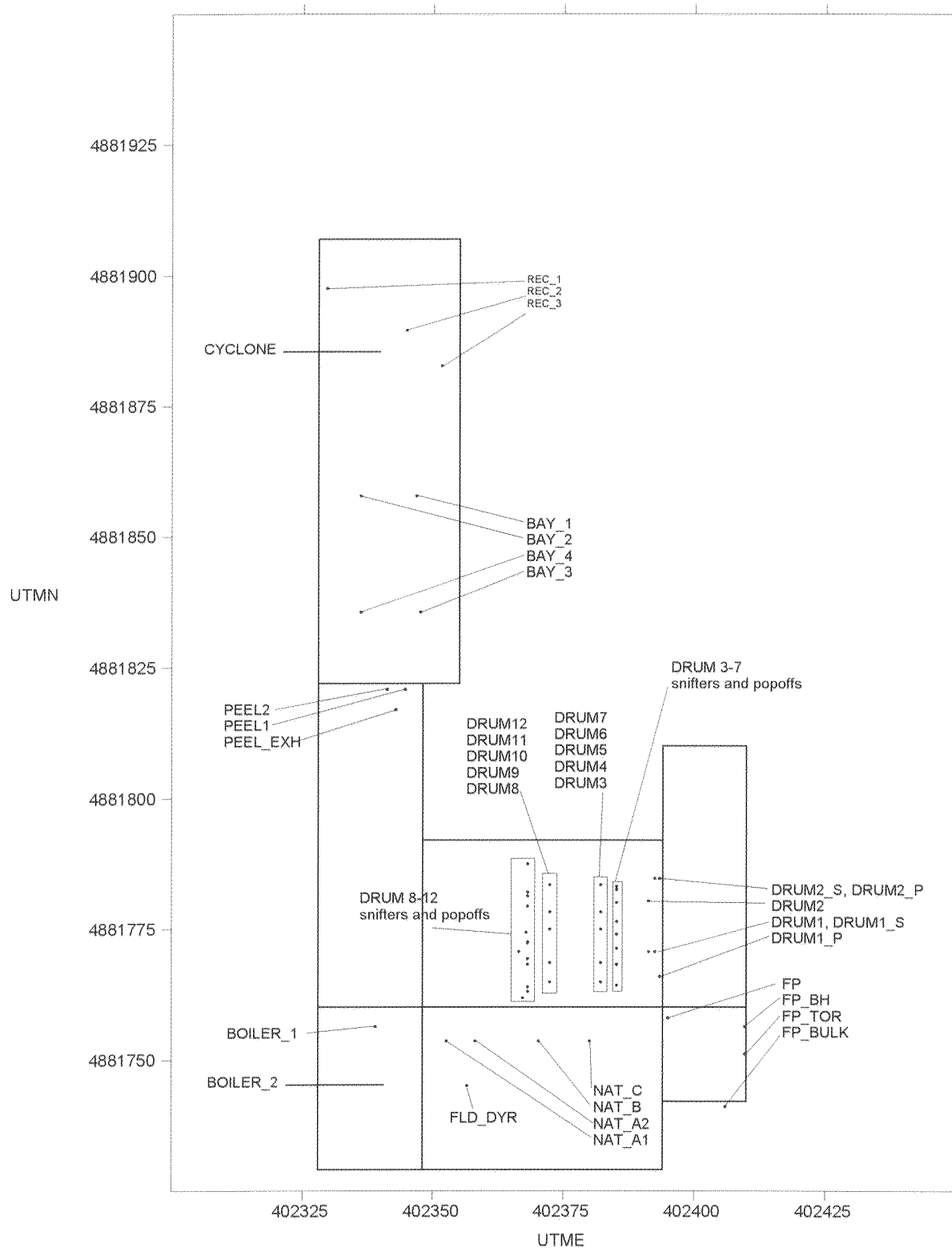
The RDO facility is not a designated facility, as defined at IDAPA 58.01.01.006.27. The RDO facility is a Title V major source as defined in IDAPA 58.01.01.006.55 for criteria pollutants NO<sub>x</sub> and SO<sub>2</sub>. With the proposed modifications, RDO will also be a Title V major source for PM-10.

### **2.1 Facility Description**

RDO is a potato processing company. Their process primarily involves potato dehydration to make potato flakes. The process includes dryers and dehydration lines, which are sources of emissions. Due to the large amount of drying and dehydration of product to approximately 12% moisture, energy considerations are very important to RDO. Descriptions of the process and the proposed boiler modifications are given in Section 3. A process flow diagram is also included in Section 3.

### **2.2 Facility Location**

The facility is located approximately 34 miles north of Idaho Falls on Interstate 15 in Hamer, Idaho. The dehydration plant is located in Section 28, Township 9 North, Range 36 East, at Universal Transverse Mercator (UTM) Zone 12 coordinates of 402.4 km east, 4881.8 km north. The terrain surrounding the plant is fairly flat, gently sloping downward from north to south. Elevated terrain is primarily to the north and east of the facility. A facility site plan is shown in Figure 2-1. The ambient air boundary is shown in Figure 2-2. A facility location map is shown in Figure 2-3.



**Figure 2-1 Facility Site Plan**

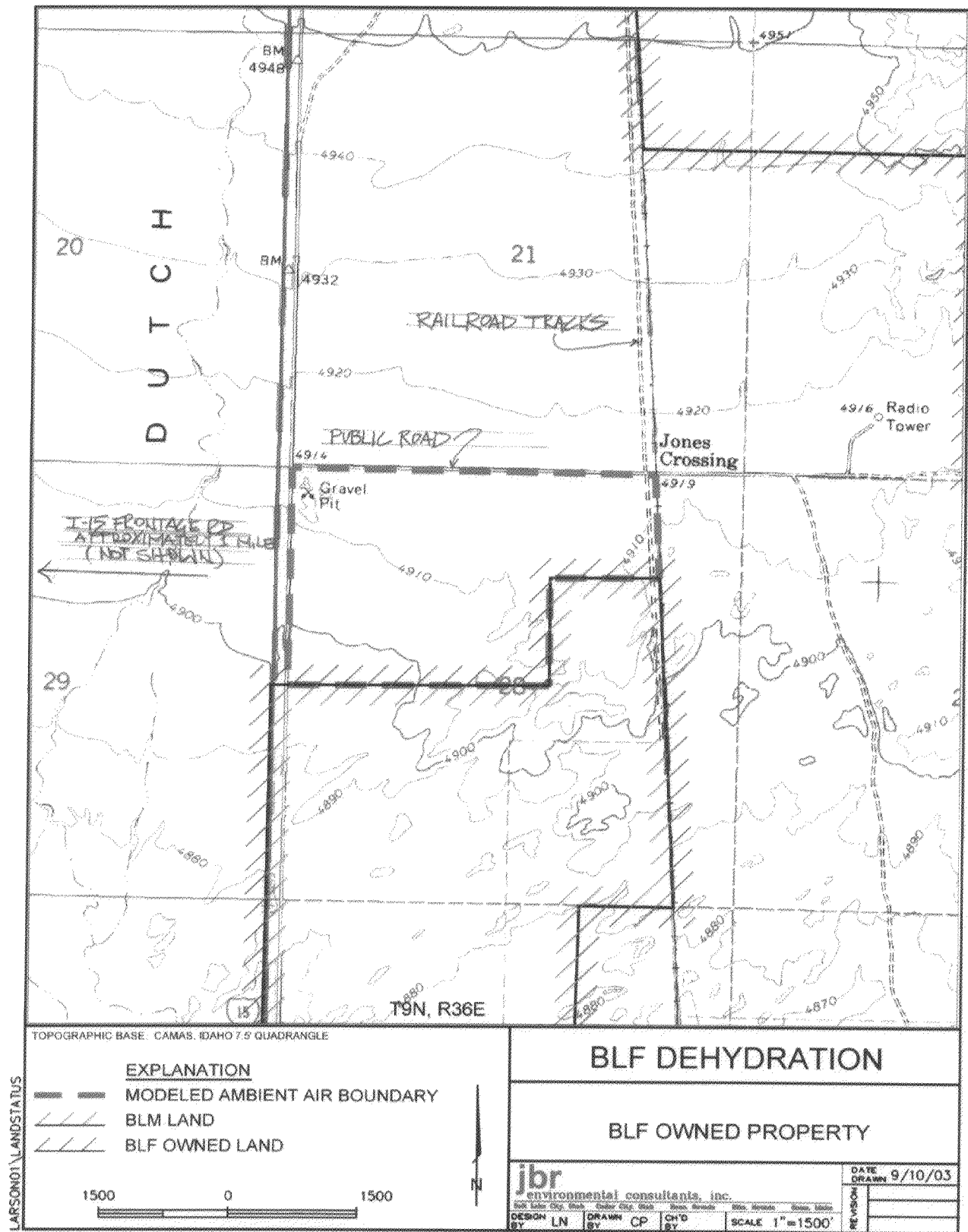
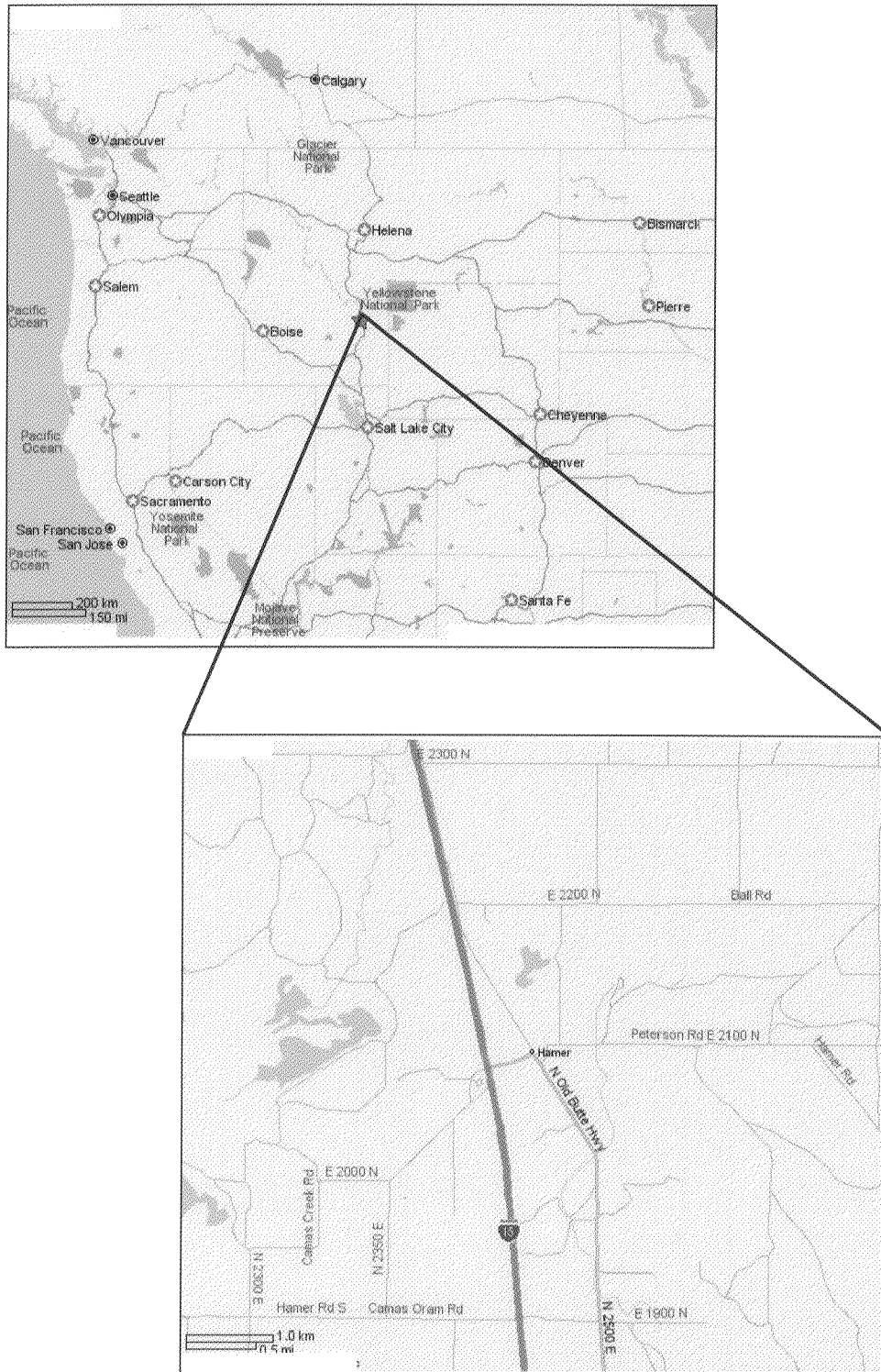


Figure 2-2 Ambient Air Boundary



**Figure 2-3 Facility Location Map**

### **2.3 IDEQ General Facility Information Form**

This subsection contains the required IDEQ General Information Form, Section 1 for a PTC application, on the following page.



**STATE OF IDAHO**  
**DEPARTMENT OF ENVIRONMENTAL QUALITY**

**APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY**  
**(IDAPA 58.01.01.200-.225)**

SECTION 1: GENERAL  
INFORMATION

1. COMPANY AND DIVISION NAME <b>RDO Processing, LLC</b>																	
2. MAILING ADDRESS: <b>P.O. Box 265</b>		COUNTY: <b>Clark</b>	NUMBER OF FULL-TIME EMPLOYEES: <b>250</b>														
3. CITY: <b>Dubois</b>	STATE: <b>Idaho</b>	ZIP CODE: <b>83423</b>	TELEPHONE NUMBER: <b>(208) 374-5600</b>														
4. PERSON TO CONTACT: <b>Jan Nel</b>			TITLE: <b>Plant Manager</b>														
5. EXACT PLANT LOCATION (IDENTIFY LOCALITY, AND INCLUDE UTM COORDINATES IF KNOWN): <b>Section 28, Township 9 North, Range 36 East, at Universal Transverse Mercator (UTM) Zone 12 coordinates of 402.4 km east, 4881.8 km north.</b>																	
6. GENERAL NATURE OF BUSINESS AND KINDS OF PRODUCTS: <b>Potato Dehydration</b>																	
7. REASON FOR APPLICATION  <input type="checkbox"/> permit to construct a new facility  <input checked="" type="checkbox"/> permit to modify an existing source permit number: <u>T2-050511</u> and Consent Order Case No. E-060001  <input type="checkbox"/> permit to construct a new source at an existing facility  <input type="checkbox"/> change of owner or location permit number current owner		8. LIST ALL FACILITIES WITHIN THE STATE THAT ARE UNDER YOUR CONTROL OR UNDER COMMON CONTROL AND HAVE EMISSIONS TO THE AIR. IF NONE, SO STATE.															
		<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 50%;">NAME</th><th style="width: 50%;">LOCATION</th></tr></thead><tbody><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr></tbody></table>		NAME	LOCATION												
NAME	LOCATION																
9. ESTIMATED CONSTRUCTION START DATE: <b>June 1, 2006. RDO intends to obtain a pre-permit construction approval.</b>			ESTIMATED COMPLETION DATE:														
10. NAME AND TITLE OF OWNER OR RESPONSIBLE OFFICIAL: <b>Jan Nel, Plant Manager</b>																	
11. In accordance with IDAPA 58.01.01.123 (Rules for the Control of Air Pollution in Idaho), I <u><b>Jan Nel</b></u> , certify based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.																	
SIGNATURE		DATE <u><b>04/28/06</b></u>															



### 3.0 PROCESS DESCRIPTION

#### 3.1 General Discussion

The process used to produce dehydrated potato product involves steam peeling, dryers, flake lines, baghouses for product recovery, and other equipment. Boilers provide the steam necessary for drying the product. Two 30,000 gallon tanks are installed to store the fuel required for the boilers. RDO is planning to install a third 30,000 gallon fuel storage tank. For the purposes of estimating emissions, all three tanks were considered.

The emission sources and their respective installation/modification dates are presented in Table 3-1:

**Table 3-1 Major Process Equipment**

EQUIPMENT	INSTALLATION/MODIFICATION DATE
Boiler No. 1	1996
Boiler No. 2	2004
Cyclone	2004
Flaker 1	1997
Flaker 2	1997
Flaker 3	1997
Flaker 4	1997
Flaker 5	1997
Flaker 6	1997
Flaker 7	1997
Flaker 8	1997
Flaker 9	1997
Flaker 10	1997
Flaker 11	1997
Flaker 12	1997
Fluidized Bed Dryer	1998
National Dryer Fan A1	1990
National Dryer Fan A2	1990
National Dryer Fan B	1990
National Dryer Fan C	1990
Flake Packaging Bulk Line	1989
Flake Packaging	1989
Flake Packaging Torit	1996
Flake Packaging Drum Negative Air Baghouse	1997
Propane Heaters 1	1989
Propane Heaters 2	1989
Propane Heaters 3	1989
30,000 gal Fuel Tank	2003
30,000 gal Fuel Tank	2003
30,000 gal Fuel Tank	proposed

Note: Steam peelers and cookers are determined not to be emission sources.

### **3.2 Discussion of the Dehydration Process**

RDO is a potato processing company. Their process primarily involves potato dehydration to make potato flakes. The process includes dryers and dehydration lines, which are also sources of emissions. Descriptions of the potato process is given below (discussion of the boiler modification follows this subsection).

Initially potatoes are received at the plant on trucks and are unloaded into one of six receiving bays. After much of the rock and silt are removed, the potatoes enter a steam peeler, where they are exposed to steam for a brief period of time. This loosens the potato peel prior to the washing stage. The steam is exhausted and quenched in a water bath. The peeling is fully removed by dry and wet scrubbing which is done by revolving brushes and can include water sprays. The potatoes are then trimmed, sized, and sorted.

In the flake line, the potatoes are sent to a pre-cooker, which blanches the initially raw potatoes. This operation gelatinizes the starch. Potatoes are then cooled to retrograde the starch gelatinization for better texture and taste. The potatoes are water transported into cookers where they are exposed to steam to be fully cooked. The potatoes are riced, or forced through slots and broken into smaller pieces like mash, and then added to the dehydration rolls.

The mashed/riced potatoes are spread across the face of the drum dryers with applicator rolls. Only whole cells stick to the drum. The steam drum dryer rotates and drives the moisture from the potato cells. The dryers are heated with steam from the boiler. The dried potato sheet is cut off the drum and broken into smaller pieces. Good flake goes to mills where it is cut into desired particle size and density (as required by customers) and air transported to product separation baghouses. The flake is then bagged, placed into a warehouse for storage, or is transferred to a bulk line for storage in silos.

In the agglomerated line, potato flakes mixed with flavorings enter a fluidized bed dryer and then enter a retail line. Product is bagged. The crush line material comes from National Dryer product.

### **3.3 Equipment Descriptions**

**Steam Peeler:** Consists of a rotating vessel which is batch filled with potatoes and sealed steam is applied to the vessel for about 15 sec. at 250psi and the steam on the potato. Potatoes are then dumped into a hopper and augured to scrubbers that remove the peel.

**Pre-cooker/Blancher:** Consists of a continuous screw in a water vessel that is heated by steam and the water circulated to heat potatoes to gelatinize starch.

**Cooker:** Consists of a twin screw in a vessel where the potatoes are steam heated and cooked until soft.

**Drum Dryer:** Consists of a steam heated rotating drum and applicator rolls. The mashed potatoes are applied evenly across the heated drum by the applicator and the dry flake is removed from the back of the drum by a doctor knife.

**Flakers:** Flakers are for the conversion of materials from a liquid state to solid flakes in a single operation. This change of state is achieved by applying a film of the liquid material to be flaked to the outer surface of a horizontal rotating drum, which is cooled internally by means of water. As the drum rotates, the liquid film solidifies and is subsequently removed from the drum surface by a doctor blade or knife.

**Multi-Stage Dryers:** Incorporates a series of single-stage, multizone units. It is ideal for products with a high incoming moisture content that would benefit from reorientation through transfer between conveyor belts at the ideal time in their drying cycle. Product bed depth and air flow vary between stages based on the product's drying curve. Discrete zones allow both air flow and temperature to be independently altered to maintain proper process parameters.

**Fluidized Bed Dryer:** Converts a bed of solid potato flakes into an expanded, suspended mass that has many properties of a liquid. The fluidized dryer uses natural gas combustion gases as the suspension medium. The heat from the combustion gases dries and mixes the flakes and flavorings before being bagged.

### **3.4 Boiler Adjustments**

RDO is proposing to operate the main boiler at the facility on high sulfur residual fuel and install a scrubber to control SO<sub>2</sub> emission rates. The maximum fuel consumption for the desired fuels and the proposed re-rating is shown in Table 3-2 below:

**Table 3-2 Boiler Operation**

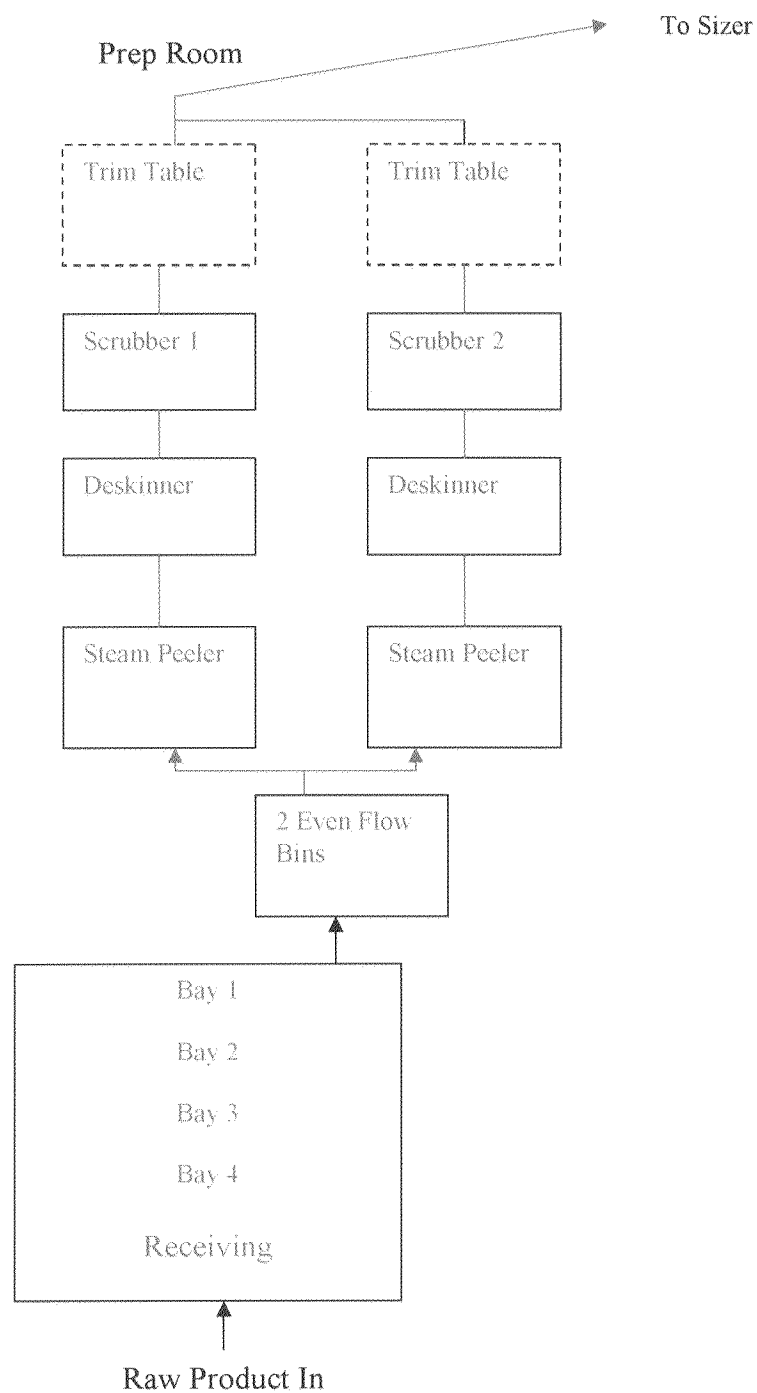
Fuel	Maximum Consumption
Propane	1596 gal/hr
Residual Oil ( $\leq 1.75\%$ Sulfur)	1041 gal/hr

For the proposed scrubber, RDO has elected to use a scrubber design by Innovative Scrubber Solutions, Inc. The scrubber design will use a lime solution to remove the SO<sub>2</sub> from the boiler exhaust gas. The design specifications and drawing are included as Appendix B. Innovative Scrubber Solutions, Inc. guarantees an SO<sub>2</sub> removal efficiency of at least 90%, with an instantaneous emission of not more than 0.2 lb/MMBtu of heat input. In addition to reducing the SO<sub>2</sub> emissions from the boiler, the engineers at Innovative Scrubber Solutions, Inc. also assert that a 25% reduction in PM emissions will occur. At this PM removal efficiency, RDO will demonstrate compliance with the NSPS for PM of 0.10 lb/MMBtu; source testing will verify compliance with the standard. This reduction potential was not applied in determining potential to emit (PTE) PM, only for demonstrating compliance with the NSPS for PM.

### **3.5 Process Flow Diagram**

Figure 3-1 shows the process flow diagram for the flaker and agglomeration processes.





**Figure 3-1 Process Flow Diagram**

### **3.6 Permit Application Forms**

This subsection contains the following sections of the IDEQ PTC Application Forms:

- Section 2 – Fuel Burning Equipment
- Section 3 – Process and Manufacturing Equipment

## STATE OF IDAHO

## APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY

## SECTION 2: FUEL-BURNING EQUIPMENT (complete a separate page for each unit)

1. APPLICANT'S REFERENCE NUMBER Boiler #1			
2. EQUIPMENT MANUFACTURER AND MODEL NUMBER Wabash Power Equipment Co., Model No.: NS-F-89-ECON, Serial No. D-3465		3. RATED HEAT INPUT CAPACITY 150 MMBTU/hr primary	
4. BURNER UNIT TYPE (use code) 9. Horizontally fired		5. HEAT USAGE % process    % space heating 100 % process	
6. FUEL DATA		9. POLLUTION CONTROL EQUIPMENT	
	Primary	Secondary	
fuel type (use code)*	2. #6 Residual Fuel Oil	5. Propane	type
percent sulfur	1.75 %	0.15 gr/dscf	manufacturer
percent ash	0.05%	0%	model number
percent nitrogen	0.15%	0%	% efficiency
percent carbon	88.6%	81.8%	
percent hydrogen	10.4%	18.2%	MANUFACTURER GUARANTEED <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
percent moisture	0.05%	0%	(Include guarantee) included in Appendix B
heat content	150,000 BTU/gal	94,000 BTU/gal	for wet scrubbers:
(percent by weight or volume)		water flow _____ gpm	
All in % weight except sulfur for propane.		pressure drop _____ inches of water	
7. FUEL CONSUMPTION		for baghouse:	
	Primary	Secondary	air/cloth ratio
Maximum amount burned/hour	1041 gal/hr	1596 gal/hr	pressure drop _____ inches of water
Normal amount burned/year	9,119,160 gal/yr	13,980,960 gal/yr	10. STACK OR EXHAUST DATA
Fly ash reinjection? <input type="checkbox"/> yes <input type="checkbox"/> no <input checked="" type="checkbox"/> n.a.			
8. OPERATING SCHEDULE			
Hours per day	24		
Days per week	7		
Weeks per year	52		
11. CRITERIA POLLUTANT ESTIMATED EMISSIONS (Maximum of all fuels is shown below)			
Particulates	21.66 lb/hr	94.85 tons/yr	Nitrogen oxides
Sulfur dioxide	28.60 lb/hr	125.27 tons/yr	Volatile organic compounds
Carbon monoxide	5.21 lb/hr	22.80 tons/yr	
(Include calculations and assumptions)			
FUEL CODES		BURNER CODES	
1. Natural gas		1. Spreader stoker	
2. Oil (specify ASTM grade number)		2. Chain or traveling grate	
3. Wood (specify chips, bark, shavings sander dust)		3. Hand fired	
4. Coal (specify bituminous, anthracite, lignite)		4. Cyclone furnace	
5. Other (specify) Propane		5. Wet bottom (pulverized coal)	
		6. Dry bottom (pulverized coal)	
		7. Underfeed stoker	
		8. Tangentially fired	
		9. Horizontally fired	
		10. Other (specify)	



## STATE OF IDAHO

## APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY

## SECTION 2: FUEL-BURNING EQUIPMENT (complete a separate page for each unit)

1. APPLICANT'S REFERENCE NUMBER Boiler #2			
2. EQUIPMENT MANUFACTURER AND MODEL NUMBER Superior, Model 6-5-1000-S150-GP		3. RATED HEAT INPUT CAPACITY 6.7 MMBTU/hr	
4. BURNER UNIT TYPE (use code) 9. Horizontally fired		5. HEAT USAGE % process    % space heating 100 % process	
6. FUEL DATA		9. POLLUTION CONTROL EQUIPMENT	
	Primary	Secondary	
fuel type (use code)*	1. Natural Gas		type
percent sulfur	0.003 %		manufacturer
percent ash	0.0%		model number
percent nitrogen	1.8%		% efficiency
percent carbon	73.6%		
percent hydrogen	24.3%		MANUFACTURER GUARANTEED _____ yes _____ no
percent moisture	0.0%		(Include guarantee)
heat content	1,050 BTU/scf		for wet scrubbers:
(percent by weight or volume)		water flow _____ gpm	
All in % weight except sulfur for propane.		pressure drop _____ inches of water	
7. FUEL CONSUMPTION		for baghouse:	
	Primary	Secondary	air/cloth ratio
Maximum amount burned/hour	6,381 scf/hr		pressure drop _____ inches of water
Normal amount burned/year	55.9 MMscf/yr		
Fly ash reinjection? ____ yes ____ no <u>X</u> n.a.		10. STACK OR EXHAUST DATA	
8. OPERATING SCHEDULE			
Hours per day	24		
Days per week	7		
Weeks per year	52		
11. CRITERIA POLLUTANT ESTIMATED EMISSIONS (Maximum of all fuels is shown below)			
Particulates	0.05 lb/hr	0.21 tons/yr	Nitrogen oxides
Sulfur dioxide	0.004 lb/hr	0.02 tons/yr	0.64 lb/hr
Carbon monoxide	0.54 lb/hr	2.35 tons/yr	2.79 tons/yr
		Volatile organic compounds	0.04 lb/hr
			0.15 tons/yr
(Include calculations and assumptions)			
FUEL CODES		BURNER CODES	
1. Natural gas		1. Spreader stoker	
2. Oil (specify ASTM grade number)		2. Chain or traveling grate	
3. Wood (specify chips, bark, shavings sander dust)		3. Hand fired	
4. Coal (specify bituminous, anthracite, lignite)		4. Cyclone furnace	
5. Other (specify) Propane		5. Wet bottom (pulverized coal)	
		6. Dry bottom (pulverized coal)	
		7. Underfeed stoker	
		8. Tangentially fired	
		9. Horizontally fired	
		10. Other (specify)	

## STATE OF IDAHO

## APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY

## SECTION 2: FUEL-BURNING EQUIPMENT (complete a separate page for each unit)

1. APPLICANT'S REFERENCE NUMBER Fluidized Bed Dryer			
2. Maxon Ovenpak 400 Size 415H		3. RATED HEAT  INPUT CAPACITY 4.5 MMBTU/hr	
		4. BURNER UNIT TYPE (use code) 9. Horizontally fired	
		5. HEAT USAGE % process    % space heating 100 % process	
6. FUEL DATA		9. POLLUTION CONTROL EQUIPMENT	
	Primary 5. Propane	Secondary 1. Natural gas	Primary None    Secondary None
fuel type (use code)*			type
percent sulfur	0.15 gr/dscf	0.003%	manufacturer
percent ash	0%	0%	model number
percent nitrogen	0%	1.8%	% efficiency
percent carbon	81.8%	73.6%	
percent hydrogen	18.2%	24.3%	MANUFACTURER GUARANTEED    yes    no
percent moisture	0%	0%	(Include guarantee)
heat content	94,000 BTU/gal	1,050 BTU/scf	for wet scrubbers:
(percent by weight or volume)			water flow    gpm
All in % weight except sulfur for propane.			pressure drop    inches of water
7. FUEL CONSUMPTION		for baghouse:	
	Primary	Secondary	air/cloth ratio
Maximum amount burned/hour	48 gal/hr	4,500 scf/hr	pressure drop    inches of water
Normal amount burned/year	420,500 gal/yr	39.4 MMscf/yr	
Fly ash reinjection? ____ yes ____ no <u>X</u> n.a.		10. STACK OR EXHAUST DATA	
8. OPERATING SCHEDULE		Stack ID    FBD_DYR	
Hours per day	24	Height    39.42 ft	
Days per week	7	Exit diameter    0.0033 ft	
Weeks per year	52	Exit gas volume    1.7E-6 acfm	
		Exit gas temperature    110° F	
11. CRITERIA POLLUTANT ESTIMATED EMISSIONS		(Include a separate page for each stack if multiple stacks or vents are used)	
PM-10	0.03 lb/hr	0.15 tons/yr	Nitrogen oxides
Sulfur dioxide	0.07 lb/hr	0.32 tons/yr	0.67 lb/hr    2.94 tons/yr
Carbon monoxide	0.38 lb/hr	1.66 tons/yr	Volatile organic compounds
			0.02 lb/hr    0.11 tons/yr
(Include calculations and assumptions)			
FUEL CODES		BURNER CODES	
1. Natural gas		1. Spreader stoker	
2. Oil (specify ASTM grade number)		2. Chain or traveling grate	
3. Wood (specify chips, bark, shavings sander dust)		3. Hand fired	
4. Coal (specify bituminous, anthracite, lignite)		4. Cyclone furnace	
5. Other (specify): propane		5. Wet bottom (pulverized coal)	
		6. Dry bottom (pulverized coal)	
		7. Underfeed stoker	
		8. Tangentially fired	
		9. Horizontally fired	
		10. Other (specify)	

## STATE OF IDAHO

## APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY

## SECTION 2: FUEL-BURNING EQUIPMENT (complete a separate page for each unit)

1. APPLICANT'S REFERENCE NUMBER National Dryer Stage A (for stack A1)			
2. EQUIPMENT MANUFACTURER AND MODEL NUMBER National, Eclipse 200 AM		3. RATED HEAT INPUT CAPACITY 3.6 MMBTU/hr	
4. BURNER UNIT TYPE (use code) 9. Horizontally fired		5. HEAT USAGE % process    % space heating 100 % process	
6. FUEL DATA		9. POLLUTION CONTROL EQUIPMENT	
	Primary 5. Propane	Secondary 1. Natural gas	Primary None    Secondary None
fuel type (use code)*			
percent sulfur	0.15 gr/dscf	0.003%	
percent ash	0%	0%	
percent nitrogen	0%	1.8%	
percent carbon	81.8%	73.6%	
percent hydrogen	18.2%	24.3%	
percent moisture	0%	0%	
heat content	94,000 BTU/gal	1,050 BTU/scf	
(percent by weight or volume)			
All in % weight except sulfur for propane.			
7. FUEL CONSUMPTION		MANUFACTURER GUARANTEED    yes    no (Include guarantee)	
	Primary	Secondary	for wet scrubbers:
Maximum amount burned/hour	39 gph	3,600 scf/hr	water flow    gpm
Normal amount burned/year	341,640 gal/yr	31.54 MMscf/yr	pressure drop    inches of water
Fly ash reinjection? ____ yes ____ no _X_ n.a.		for baghouse: air/cloth ratio pressure drop    inches of water	
8. OPERATING SCHEDULE		10. STACK OR EXHAUST DATA	
Hours per day	24	Stack ID    NAT_A1	
Days per week	7	Height    36 ft	
Weeks per year	52	Exit diameter    0.0033 ft	
		Exit gas volume    1.7E-6 acfm	
		Exit gas temperature    150° F	
		(Include a separate page for each stack if multiple stacks or vents are used)	
11. CRITERIA POLLUTANT ESTIMATED EMISSIONS			
Particulates	0.03 lb/hr	0.12 tons/yr	Nitrogen oxides    0.55 lb/hr    2.4 tons/yr
Sulfur dioxide	0.06 lb/hr	0.26 tons/yr	Volatile organic compounds    0.02 lb/hr    0.09 tons/yr
Carbon monoxide	0.30 lb/hr	1.32 tons/yr	
(Include calculations and assumptions)			
FUEL CODES		BURNER CODES	
1. Natural gas		1. Spreader stoker	
2. Oil (specify ASTM grade number)		2. Chain or traveling grate	
3. Wood (specify chips, bark, shavings sander dust)		3. Hand fired	
4. Coal (specify bituminous, anthracite, lignite)		4. Cyclone furnace	
5. Other (specify): propane		5. Wet bottom (pulverized coal)	
		6. Dry bottom (pulverized coal)	
		7. Underfeed stoker	
		8. Tangentially fired	
		9. Horizontally fired	
		10. Other (specify)	

## STATE OF IDAHO

## APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY

## SECTION 2: FUEL-BURNING EQUIPMENT (complete a separate page for each unit)

1. APPLICANT'S REFERENCE NUMBER National Dryer Stage A (for stack A2)																																													
2. EQUIPMENT MANUFACTURER AND MODEL NUMBER National, Eclipse 200 AM		3. RATED HEAT INPUT CAPACITY 3.6 MMBTU/hr																																											
4. BURNER UNIT TYPE (use code) 9. Horizontally fired		5. HEAT USAGE % process    % space heating 100 % process																																											
6. FUEL DATA		9. POLLUTION CONTROL EQUIPMENT																																											
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<p>Hours per day                      24</p> <p>Days per week                      7</p> <p>Weeks per year                      52</p>		<p>Stack ID                      NAT_A2</p> <p>Height                      36 ft</p> <p>Exit diameter                      0.0033 ft</p> <p>Exit gas volume                      1.7E-6 acfm</p> <p>Exit gas temperature                      176° F</p>																																											
11. CRITERIA POLLUTANT ESTIMATED EMISSIONS		(Include a separate page for each stack if multiple stacks or vents are used)																																											
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## STATE OF IDAHO

## APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY

## SECTION 2: FUEL-BURNING EQUIPMENT (complete a separate page for each unit)

1. APPLICANT'S REFERENCE NUMBER National Dryer Stage B			
2. EQUIPMENT MANUFACTURER AND MODEL NUMBER National, Eclipse 160 AM		3. RATED HEAT INPUT CAPACITY 3.6 MMBTU/hr	
4. BURNER UNIT TYPE (use code) 9. Horizontally fired		5. HEAT USAGE % process    % space heating 100 % process	
6. FUEL DATA		9. POLLUTION CONTROL EQUIPMENT	
	Primary 5. Propane	Secondary 1. Natural gas	Primary None    Secondary None
fuel type (use code)*			
percent sulfur	0.15 gr/dscf	0.003%	manufacturer
percent ash	0%	0%	model number
percent nitrogen	0%	1.8%	% efficiency
percent carbon	81.8%	73.6%	
percent hydrogen	18.2%	24.3%	MANUFACTURER GUARANTEED    yes    no
percent moisture	0%	0%	(Include guarantee)
heat content	2,524 BTU/scf	1,050 BTU/scf	for wet scrubbers:
(percent by weight or volume)			water flow    gpm
All in % weight except sulfur for propane.			pressure drop    inches of water
7. FUEL CONSUMPTION		for baghouse:	
	Primary	Secondary	air/cloth ratio
Maximum amount burned/hour	39 gph	3,600 scf/hr	pressure drop    inches of water
Normal amount burned/year	341,640 gal/yr	31.54 MMscf/yr	
Fly ash reinjection? ___ yes ___ no _X_ n.a.		10. STACK OR EXHAUST DATA	
8. OPERATING SCHEDULE		Stack ID    NAT_B	
Hours per day	24	Height	36 ft
Days per week	7	Exit diameter	0.0033 ft
Weeks per year	52	Exit gas volume	1.7E-6 acfm
		Exit gas temperature	167° F
11. CRITERIA POLLUTANT ESTIMATED EMISSIONS		(Include a separate page for each stack if multiple stacks or vents are used)	
Particulates	0.03 lb/hr    0.12 tons/yr	Nitrogen oxides	0.55 lb/hr    2.4 tons/yr
Sulfur dioxide	0.06 lb/hr    0.26 tons/yr	Volatile organic compounds	0.02 lb/hr    0.09 tons/yr
Carbon monoxide	0.30 lb/hr    1.32 tons/yr		
(Include calculations and assumptions)			
FUEL CODES		BURNER CODES	
1. Natural gas		1. Spreader stoker	7. Underfeed stoker
2. Oil (specify ASTM grade number)		2. Chain or traveling grate	8. Tangentially fired
3. Wood (specify chips, bark, shavings sander dust)		3. Hand fired	9. Horizontally fired
4. Coal (specify bituminous, anthracite, lignite)		4. Cyclone furnace	10. Other (specify)
5. Other (specify): propane		5. Wet bottom (pulverized coal)	
		6. Dry bottom (pulverized coal)	

## SECTION 2: FUEL-BURNING EQUIPMENT (complete a separate page for each unit)

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## STATE OF IDAHO

## APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY

## SECTION 2: FUEL-BURNING EQUIPMENT (complete a separate page for each unit)

1. APPLICANT'S REFERENCE NUMBER Propane Heater 1			
2. EQUIPMENT MANUFACTURER AND MODEL NUMBER Maxon, Model SC		3. RATED HEAT INPUT CAPACITY 1.2 MMBTU/hr	
4. BURNER UNIT TYPE (use code) 9. Horizontally fired		5. HEAT USAGE % process    % space heating 100 % space heating	
6. FUEL DATA		9. POLLUTION CONTROL EQUIPMENT	
	Primary 5. Propane	Secondary 1. Natural gas	Primary None
fuel type (use code)*			type
percent sulfur	0.15 gr/dscf	0.003%	manufacturer
percent ash	0%	0%	model number
percent nitrogen	0%	1.8%	% efficiency
percent carbon	81.8%	73.6%	
percent hydrogen	18.2%	24.3%	MANUFACTURER GUARANTEED _____ yes _____ no
percent moisture	0%	0%	(Include guarantee)
heat content	2,524 BTU/scf	1,050 BTU/scf	for wet scrubbers:
(percent by weight or volume)			water flow _____ gpm
All in % weight except sulfur for propane.			pressure drop _____ inches of water
7. FUEL CONSUMPTION		for baghouse:	
	Primary	Secondary	air/cloth ratio
Maximum amount burned/hour	13 gph	1,200 scf/hr	pressure drop _____ inches of water
Normal amount burned/year	113,880 gal/yr	10.5 MMscf/hr	
Fly ash reinjection? ____ yes ____ no <u>X</u> n.a.		10. STACK OR EXHAUST DATA	
8. OPERATING SCHEDULE			
Hours per day	24		
Days per week	7		
Weeks per year	52		
11. CRITERIA POLLUTANT ESTIMATED EMISSIONS			
Particulates	0.01 lb/hr	0.04 tons/yr	Nitrogen oxides
Sulfur dioxide	0.02 lb/hr	0.087 tons/yr	0.23 lb/hr
Carbon monoxide	0.10 lb/hr	0.44 tons/yr	1.0 tons/yr
		Volatile organic compounds	0.007 lb/hr
			0.03 tons/yr
(Include calculations and assumptions)			
FUEL CODES		BURNER CODES	
1. Natural gas	1. Spreader stoker		7. Underfeed stoker
2. Oil (specify ASTM grade number)	2. Chain or traveling grate		8. Tangentially fired
3. Wood (specify chips, bark, shavings sander dust)	3. Hand fired		9. Horizontally fired
4. Coal (specify bituminous, anthracite, lignite)	4. Cyclone furnace		10. Other (specify)
5. Other (specify): propane	5. Wet bottom (pulverized coal)		
	6. Dry bottom (pulverized coal)		

# APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY

## SECTION 2: FUEL-BURNING EQUIPMENT (complete a separate page for each unit)

<b>1. APPLICANT'S REFERENCE NUMBER</b> Propane Heater 2																																													
<b>2. EQUIPMENT MANUFACTURER AND MODEL NUMBER</b> Maxon, Model SC		<b>3. RATED HEAT</b> INPUT CAPACITY 1.2 MMBTU/hr																																											
<b>4. BURNER UNIT TYPE (use code)</b> 9. Horizontally fired		<b>5. HEAT USAGE</b> % process    % space heating 100 % space heating																																											
<b>6. FUEL DATA</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Primary</th> <th style="text-align: center;">Secondary</th> </tr> </thead> <tbody> <tr> <td style="text-align: right;">fuel type (use code)*</td> <td style="text-align: center;">5. Propane</td> <td style="text-align: center;">1. Natural gas</td> </tr> <tr> <td style="text-align: right;">percent sulfur</td> <td style="text-align: center;">0.15 gr/dscf</td> <td style="text-align: center;">0.003%</td> </tr> <tr> <td style="text-align: right;">percent ash</td> <td style="text-align: center;">0%</td> <td style="text-align: center;">0%</td> </tr> <tr> <td style="text-align: right;">percent nitrogen</td> <td style="text-align: center;">0%</td> <td style="text-align: center;">1.8%</td> </tr> <tr> <td style="text-align: right;">percent carbon</td> <td style="text-align: center;">81.8%</td> <td style="text-align: center;">73.6%</td> </tr> <tr> <td style="text-align: right;">percent hydrogen</td> <td style="text-align: center;">18.2%</td> <td style="text-align: center;">24.3%</td> </tr> <tr> <td style="text-align: right;">percent moisture</td> <td style="text-align: center;">0%</td> <td style="text-align: center;">0%</td> </tr> <tr> <td style="text-align: right;">heat content</td> <td style="text-align: center;">2,524 BTU/scf</td> <td style="text-align: center;">1,050 BTU/scf</td> </tr> </tbody> </table> <p style="margin-top: 5px;">(percent by weight or volume)          All in % weight except sulfur for propane.</p>			Primary	Secondary	fuel type (use code)*	5. Propane	1. Natural gas	percent sulfur	0.15 gr/dscf	0.003%	percent ash	0%	0%	percent nitrogen	0%	1.8%	percent carbon	81.8%	73.6%	percent hydrogen	18.2%	24.3%	percent moisture	0%	0%	heat content	2,524 BTU/scf	1,050 BTU/scf	<b>9. POLLUTION CONTROL EQUIPMENT</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Primary</th> <th style="text-align: center;">Secondary</th> </tr> </thead> <tbody> <tr> <td style="text-align: right;">type</td> <td style="text-align: center;">None</td> <td style="text-align: center;">None</td> </tr> <tr> <td style="text-align: right;">manufacturer</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td style="text-align: right;">model number</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td style="text-align: right;">% efficiency</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> </tbody> </table> <p style="margin-top: 5px;">MANUFACTURER GUARANTEED _____ yes _____ no          (Include guarantee)</p> <p style="margin-top: 5px;">for wet scrubbers:</p> <p style="margin-left: 40px;">water flow _____ gpm          pressure drop _____ inches of water</p> <p style="margin-top: 5px;">for baghouse:</p> <p style="margin-left: 40px;">air/cloth ratio          pressure drop _____ inches of water</p>			Primary	Secondary	type	None	None	manufacturer			model number			% efficiency		
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	Primary	Secondary																																											
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STATE OF IDAHO

APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY

SECTION 2: FUEL-BURNING EQUIPMENT (complete a separate page for each unit)

<b>1. APPLICANT'S REFERENCE NUMBER</b> Propane Heater 3																																													
<b>2. EQUIPMENT MANUFACTURER AND MODEL NUMBER</b> Maxon, Model SC		<b>3. RATED HEAT INPUT CAPACITY</b> 1.2 MMBTU/hr																																											
<b>4. BURNER UNIT TYPE (use code)</b> 9. Horizontally fired		<b>5. HEAT USAGE</b> % process    % space heating 100 % space heating																																											
<b>6. FUEL DATA</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Primary</th> <th style="text-align: center;">Secondary</th> </tr> </thead> <tbody> <tr> <td>fuel type (use code)*</td> <td style="text-align: center;">5. Propane</td> <td style="text-align: center;">1. Natural gas</td> </tr> <tr> <td>percent sulfur</td> <td style="text-align: center;">0.15 gr/dscf</td> <td style="text-align: center;">0.003%</td> </tr> <tr> <td>percent ash</td> <td style="text-align: center;">0%</td> <td style="text-align: center;">0%</td> </tr> <tr> <td>percent nitrogen</td> <td style="text-align: center;">0%</td> <td style="text-align: center;">1.8%</td> </tr> <tr> <td>percent carbon</td> <td style="text-align: center;">81.8%</td> <td style="text-align: center;">73.6%</td> </tr> <tr> <td>percent hydrogen</td> <td style="text-align: center;">18.2%</td> <td style="text-align: center;">24.3%</td> </tr> <tr> <td>percent moisture</td> <td style="text-align: center;">0%</td> <td style="text-align: center;">0%</td> </tr> <tr> <td>heat content</td> <td style="text-align: center;">2,524 BTU/scf</td> <td style="text-align: center;">1,050 BTU/scf</td> </tr> </tbody> </table> <p>(percent by weight or volume)</p> <p style="text-align: center;">All in % weight except sulfur for propane.</p>			Primary	Secondary	fuel type (use code)*	5. Propane	1. Natural gas	percent sulfur	0.15 gr/dscf	0.003%	percent ash	0%	0%	percent nitrogen	0%	1.8%	percent carbon	81.8%	73.6%	percent hydrogen	18.2%	24.3%	percent moisture	0%	0%	heat content	2,524 BTU/scf	1,050 BTU/scf	<b>9. POLLUTION CONTROL EQUIPMENT</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Primary</th> <th style="text-align: center;">Secondary</th> </tr> </thead> <tbody> <tr> <td>type</td> <td style="text-align: center;">None</td> <td style="text-align: center;">None</td> </tr> <tr> <td>manufacturer</td> <td></td> <td></td> </tr> <tr> <td>model number</td> <td></td> <td></td> </tr> <tr> <td>% efficiency</td> <td></td> <td></td> </tr> </tbody> </table> <p>MANUFACTURER GUARANTEED _____ yes _____ no          (Include guarantee)</p> <p>for wet scrubbers:</p> <p style="margin-left: 40px;">water flow _____ gpm</p> <p style="margin-left: 40px;">pressure drop _____ inches of water</p> <p>for baghouse:</p> <p style="margin-left: 40px;">air/cloth ratio</p> <p style="margin-left: 40px;">pressure drop _____ inches of water</p>			Primary	Secondary	type	None	None	manufacturer			model number			% efficiency		
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STATE OF IDAHO

APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY

SECTION 3: PROCESS AND MANUFACTURING EQUIPMENT (complete a separate page for each distinct process or manufacturing operation)

1. APPLICANT'S REFERENCE NUMBER Cyclone		2. PROCESS OR OPERATION NAME Tote Dump Station																																				
3. MAXIMUM RATED INPUT CAPACITY  1,750 lb/hr	4. NORMAL MAXIMUM FEED INPUT  1,750lb/hr		5. NORMAL MAXIMUM PRODUCT OUTPUT  1,750 lb/hr																																			
6. PROCESS EQUIPMENT  <div style="text-align: center;">           Type Cyclone            Manufacturer Custom            Model Number NA            Feed Material Potato Flakes         </div>		10. POLLUTION CONTROL EQUIPMENT <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 60%;"></th> <th style="width: 20%; text-align: center;">Primary</th> <th style="width: 20%; text-align: center;">Secondary</th> </tr> <tr> <td>Type</td> <td style="text-align: center;">None</td> <td></td> </tr> <tr> <td>Manufacturer</td> <td></td> <td></td> </tr> <tr> <td>Model Number</td> <td></td> <td></td> </tr> <tr> <td>% Efficiency</td> <td></td> <td></td> </tr> </table>			Primary	Secondary	Type	None		Manufacturer			Model Number			% Efficiency																						
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## STATE OF IDAHO

## APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY

SECTION 3: PROCESS AND MANUFACTURING EQUIPMENT (complete a separate page for each distinct process or manufacturing operation)

1. APPLICANT'S REFERENCE NUMBER Drum Dryers 1-12		2. PROCESS OR OPERATION NAME Dehydration Process Lines																
3. MAXIMUM RATED INPUT CAPACITY  90,000 lb/hr	4. NORMAL MAXIMUM FEED INPUT  90,000 lb/hr	6. NORMAL MAXIMUM PRODUCT OUTPUT  18,000 lb/hr																
6. PROCESS EQUIPMENT  <div style="text-align: center;">Type Dehydrators</div> <div style="text-align: center;">Manufacturer <u>Various</u></div> <div style="text-align: center;">Model Number <u>Various</u></div> <div style="text-align: center;">Feed Material <u>Potatoes</u></div>		10. POLLUTION CONTROL EQUIPMENT <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"></td> <td style="width: 20%; text-align: center;">Primary</td> <td style="width: 20%; text-align: center;">Secondary</td> </tr> <tr> <td>Type</td> <td style="text-align: center;">None</td> <td style="text-align: center;">None</td> </tr> <tr> <td>Manufacturer</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td>Model Number</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td>% Efficiency</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> </table>			Primary	Secondary	Type	None	None	Manufacturer			Model Number			% Efficiency		
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STATE OF IDAHO

APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY

SECTION 3: PROCESS AND MANUFACTURING EQUIPMENT (complete a separate page for each distinct process or manufacturing operation)

1. APPLICANT'S REFERENCE NUMBER Flake Packaging Bulk Line				2. PROCESS OR OPERATION NAME Dehydration Process Lines																																																					
3. MAXIMUM RATED INPUT CAPACITY 12,000 lb/hour		4. NORMAL MAXIMUM FEED INPUT 12,000 lb/hr		7. NORMAL MAXIMUM PRODUCT OUTPUT 12,000 lb/hr																																																					
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STATE OF IDAHO

APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY

SECTION 3: PROCESS AND MANUFACTURING EQUIPMENT (complete a separate page for each distinct process or manufacturing operation)

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3. MAXIMUM RATED INPUT CAPACITY 8,000 lb/hour	4. NORMAL MAXIMUM FEED INPUT 8,000 lb/hr		8. NORMAL MAXIMUM PRODUCT OUTPUT 8,000 lb/hr																																																		
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RDO Processing, LLC.  
Facility-Wide Tier II Permit Application  
Page 3-22

## STATE OF IDAHO

## APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY

SECTION 3: PROCESS AND MANUFACTURING EQUIPMENT (complete a separate page for each distinct process or manufacturing operation)

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3. MAXIMUM RATED INPUT CAPACITY 18,000 lb/hour		4. NORMAL MAXIMUM FEED INPUT 18,000 lb/hr		10. NORMAL MAXIMUM PRODUCT OUTPUT 18,000 lb/hr																																																					
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8. STACK OR EXHAUST DATA  <div style="text-align: center;">Stack ID FP_BH</div> <div style="text-align: center;">Height 37.42 ft</div> <div style="text-align: center;">Exit diameter 1.53 ft</div> <div style="text-align: center;">Exit gas volume 12,000 acfm</div> <div style="text-align: center;">Exit gas temperature Ambient F</div> (Include a separate page for each stack if multiple stacks or vents are used)				11. CRITERIA POLLUTANT ESTIMATED EMISSIONS  <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Particulates as PM<sub>10</sub></td> <td style="width: 20%; text-align: center;">0.180 lb/hr</td> <td style="width: 20%; text-align: center;">0.788 tons/yr</td> </tr> <tr> <td>sulfur dioxide</td> <td style="text-align: center;">lb/hr</td> <td style="text-align: center;">tons/yr</td> </tr> <tr> <td>carbon monoxide</td> <td style="text-align: center;">lb/hr</td> <td style="text-align: center;">tons/yr</td> </tr> <tr> <td>nitrogen oxides</td> <td style="text-align: center;">lb/hr</td> <td style="text-align: center;">tons/yr</td> </tr> <tr> <td>Volatile organic compounds</td> <td style="text-align: center;">lb/hr</td> <td style="text-align: center;">tons/yr</td> </tr> </table> (Include calculations and assumptions)				Particulates as PM <sub>10</sub>	0.180 lb/hr	0.788 tons/yr	sulfur dioxide	lb/hr	tons/yr	carbon monoxide	lb/hr	tons/yr	nitrogen oxides	lb/hr	tons/yr	Volatile organic compounds	lb/hr	tons/yr																																			
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**STATE OF IDAHO**  
**APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY**

SECTION 3: PROCESS AND MANUFACTURING EQUIPMENT (complete a separate page for each distinct process or manufacturing operation)

1. APPLICANT'S REFERENCE NUMBER Fluidized Bed Dryer			2. PROCESS OR OPERATION NAME Dehydration Process Lines																																																				
3. MAXIMUM RATED INPUT CAPACITY 2,000 lb/hour		4. NORMAL MAXIMUM FEED INPUT 2,000 lb/hr		11. NORMAL MAXIMUM PRODUCT OUTPUT 2,000 lb/hr																																																			
6. PROCESS EQUIPMENT  <div style="text-align: center;">Type Dehydration</div> <div style="text-align: center;">Manufacturer Various</div> <div style="text-align: center;">Model Number NA</div> <div style="text-align: center;">Feed Material Potatoes</div>			10. POLLUTION CONTROL EQUIPMENT <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:60%;"></td> <td style="width:20%; text-align: center;">Primary</td> <td style="width:20%; text-align: center;">Secondary</td> </tr> <tr> <td>Type</td> <td style="text-align: center;">None</td> <td style="text-align: center;">None</td> </tr> <tr> <td>Manufacturer</td> <td></td> <td></td> </tr> <tr> <td>Model Number</td> <td></td> <td></td> </tr> <tr> <td>% Efficiency</td> <td></td> <td></td> </tr> </table>				Primary	Secondary	Type	None	None	Manufacturer			Model Number			% Efficiency																																					
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**STATE OF IDAHO**  
**APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY**

SECTION 3: PROCESS AND MANUFACTURING EQUIPMENT (complete a separate page for each distinct process or manufacturing operation)

<b>1. APPLICANT'S REFERENCE NUMBER</b> National Dryers (States A-1, A-2, B, and C)		<b>2. PROCESS OR OPERATION NAME</b> Dehydration Process Lines																
<b>3. MAXIMUM RATED INPUT CAPACITY</b> 1,500 lb/hour	<b>4. NORMAL MAXIMUM FEED INPUT</b> 1,500 lb/hr		<b>12. NORMAL MAXIMUM PRODUCT OUTPUT</b> 1,500 lb/hr															
<b>6. PROCESS EQUIPMENT</b>  <div style="text-align: center;">           Type <u>Dehydration</u>            Manufacturer <u>National</u>            Model Number <u>NA</u>            Feed Material <u>Potatoes</u> </div>		<b>10. POLLUTION CONTROL EQUIPMENT</b> <table style="width:100%; border-collapse: collapse;"> <tr> <th style="width:60%;"></th> <th style="width:20%; text-align: center;">Primary</th> <th style="width:20%; text-align: center;">Secondary</th> </tr> <tr> <td>Type</td> <td style="text-align: center;">None</td> <td style="text-align: center;">None</td> </tr> <tr> <td>Manufacturer</td> <td></td> <td></td> </tr> <tr> <td>Model Number</td> <td></td> <td></td> </tr> <tr> <td>% Efficiency</td> <td></td> <td></td> </tr> </table>			Primary	Secondary	Type	None	None	Manufacturer			Model Number			% Efficiency		
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<b>8. STACK OR EXHAUST DATA</b>  <div style="text-align: center;">           Stack ID <u>See Section 2 Forms</u>            Height <u>See Section 2 Forms</u> ft            Exit diameter <u>See Section 2 Forms</u> ft            Exit gas volume <u>See Section 2 Forms</u> acfm            Exit gas temperature <u>See Section 2 Forms</u> F         </div> <p>(Include a separate page for each stack if multiple stacks or vents are used)</p>		<b>11. CRITERIA POLLUTANT ESTIMATED EMISSIONS</b>  <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:60%;">Particulates as PM<sub>10</sub></td> <td style="width:20%; text-align: center;">1.71 lb/hr</td> <td style="width:20%; text-align: center;">7.49 tons/yr</td> </tr> <tr> <td>sulfur dioxide</td> <td style="text-align: center;">0.08 lb/hr</td> <td style="text-align: center;">0.356 tons/yr</td> </tr> <tr> <td>carbon monoxide</td> <td style="text-align: center;">lb/hr</td> <td style="text-align: center;">tons/yr</td> </tr> <tr> <td>nitrogen oxides</td> <td style="text-align: center;">lb/hr</td> <td style="text-align: center;">tons/yr</td> </tr> <tr> <td>Volatile organic compounds</td> <td style="text-align: center;">lb/hr</td> <td style="text-align: center;">tons/yr</td> </tr> </table> <p style="text-align: right;">(Include calculations and assumptions)</p>		Particulates as PM <sub>10</sub>	1.71 lb/hr	7.49 tons/yr	sulfur dioxide	0.08 lb/hr	0.356 tons/yr	carbon monoxide	lb/hr	tons/yr	nitrogen oxides	lb/hr	tons/yr	Volatile organic compounds	lb/hr	tons/yr
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**STATE OF IDAHO**

# APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY

SECTION 3: PROCESS AND MANUFACTURING EQUIPMENT (complete a separate page for each distinct process or manufacturing operation)

1. APPLICANT'S REFERENCE NUMBER Tank #1		2. PROCESS OR OPERATION NAME Storage Tank																
3. MAXIMUM RATED INPUT CAPACITY 30,000 gallons	4. NORMAL MAXIMUM FEED INPUT 30,000 gallons		13. NORMAL MAXIMUM PRODUCT OUTPUT NA															
6. PROCESS EQUIPMENT  <div style="text-align: center;">Type Storage Tank</div> <div style="text-align: center;">Manufacturer <u>Unknown</u></div> <div style="text-align: center;">Model Number <u>Unknown</u></div> <div style="text-align: center;">Feed Material <u>Diesel or Residual Fuel</u></div>		10. POLLUTION CONTROL EQUIPMENT <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"></td> <td style="width: 20%; text-align: center;">Primary</td> <td style="width: 20%; text-align: center;">Secondary</td> </tr> <tr> <td>Type</td> <td style="text-align: center;">None</td> <td style="text-align: center;">None</td> </tr> <tr> <td>Manufacturer</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td>Model Number</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td>% Efficiency</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> </table>			Primary	Secondary	Type	None	None	Manufacturer			Model Number			% Efficiency		
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sulfur dioxide	<span style="border-bottom: 1px solid black; width: 100px;"></span>	<span style="border-bottom: 1px solid black; width: 100px;"></span>																
carbon monoxide	<span style="border-bottom: 1px solid black; width: 100px;"></span>	<span style="border-bottom: 1px solid black; width: 100px;"></span>																
nitrogen oxides	<span style="border-bottom: 1px solid black; width: 100px;"></span>	<span style="border-bottom: 1px solid black; width: 100px;"></span>																
Volatile organic compounds	0.81 lb/hr	4.1E-4 tons/yr																
9. TOXIC AIR POLLUTANT ESTIMATED EMISSIONS (Include calculations and assumptions)																		
Pollutant	Uncontrolled Emissions		Controlled Emissions															
None	lb/hr	tons/yr	lb/hr															
	lb/hr	tons/yr	lb/hr															
	lb/hr	tons/yr	lb/hr															
	lb/hr	tons/yr	lb/hr															
	lb/hr	tons/yr	lb/hr															
	lb/hr	tons/yr	lb/hr															
	lb/hr	tons/yr	lb/hr															
	lb/hr	tons/yr	lb/hr															
	lb/hr	tons/yr	lb/hr															

STATE OF IDAHO

APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY

SECTION 3: PROCESS AND MANUFACTURING EQUIPMENT (complete a separate page for each distinct process or manufacturing operation)

1. APPLICANT'S REFERENCE NUMBER Tank #2		2. PROCESS OR OPERATION NAME Storage Tank																
3. MAXIMUM RATED INPUT CAPACITY 30,000 gallons	4. NORMAL MAXIMUM FEED INPUT 30,000 gallons		14. NORMAL MAXIMUM PRODUCT OUTPUT NA															
6. PROCESS EQUIPMENT  <div style="text-align: center;">Type Storage Tank</div> <div style="text-align: center;">Manufacturer <u>Unknown</u></div> <div style="text-align: center;">Model Number <u>Unknown</u></div> <div style="text-align: center;">Feed Material <u>Diesel or Residual Fuel</u></div>		10. POLLUTION CONTROL EQUIPMENT <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"></td> <td style="width: 20%; text-align: center;">Primary</td> <td style="width: 20%; text-align: center;">Secondary</td> </tr> <tr> <td>Type</td> <td style="text-align: center;">None</td> <td style="text-align: center;">None</td> </tr> <tr> <td>Manufacturer</td> <td></td> <td></td> </tr> <tr> <td>Model Number</td> <td></td> <td></td> </tr> <tr> <td>% Efficiency</td> <td></td> <td></td> </tr> </table>			Primary	Secondary	Type	None	None	Manufacturer			Model Number			% Efficiency		
	Primary	Secondary																
Type	None	None																
Manufacturer																		
Model Number																		
% Efficiency																		
7. OPERATING SCHEDULE  <div style="text-align: center;">Hours per day <u>24</u></div> <div style="text-align: center;">Days per week <u>7</u></div> <div style="text-align: center;">Weeks per year <u>52</u></div>		MANUFACTURER GUARANTEED      Yes      no (Include guarantee) For wet scrubbers: water flow _____ gpm pressure drop _____ inches of water  For baghouses: air/cloth ratio _____ pressure drop _____ inches of water																
8. STACK OR EXHAUST DATA <b>See TANKS Output</b>  <div style="text-align: center;">Stack ID _____</div> <div style="text-align: center;">Height _____ ft</div> <div style="text-align: center;">Exit diameter _____ ft</div> <div style="text-align: center;">Exit gas volume _____ acfm</div> <div style="text-align: center;">Exit gas temperature _____ F</div> <p>(Include a separate page for each stack if multiple stacks or vents are used)</p>		11. CRITERIA POLLUTANT ESTIMATED EMISSIONS  <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Particulates as PM<sub>10</sub></td> <td style="width: 20%;"></td> <td style="width: 20%; text-align: right;">tons/yr</td> </tr> <tr> <td>sulfur dioxide</td> <td style="text-align: center;">lb/hr</td> <td style="text-align: right;">tons/yr</td> </tr> <tr> <td>carbon monoxide</td> <td style="text-align: center;">lb/hr</td> <td style="text-align: right;">tons/yr</td> </tr> <tr> <td>nitrogen oxides</td> <td style="text-align: center;">lb/hr</td> <td style="text-align: right;">tons/yr</td> </tr> <tr> <td>Volatile organic compounds</td> <td style="text-align: center;">0.81 lb/hr</td> <td style="text-align: right;">4.1E-4 tons/yr</td> </tr> </table> <p style="text-align: right;">(Include calculations and assumptions)</p>		Particulates as PM <sub>10</sub>		tons/yr	sulfur dioxide	lb/hr	tons/yr	carbon monoxide	lb/hr	tons/yr	nitrogen oxides	lb/hr	tons/yr	Volatile organic compounds	0.81 lb/hr	4.1E-4 tons/yr
Particulates as PM <sub>10</sub>		tons/yr																
sulfur dioxide	lb/hr	tons/yr																
carbon monoxide	lb/hr	tons/yr																
nitrogen oxides	lb/hr	tons/yr																
Volatile organic compounds	0.81 lb/hr	4.1E-4 tons/yr																
9. TOXIC AIR POLLUTANT ESTIMATED EMISSIONS (Include calculations and assumptions)																		
Pollutant	Uncontrolled Emissions		Controlled Emissions															
None	lb/hr	tons/yr	lb/hr															
	lb/hr	tons/yr	lb/hr															
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	lb/hr	tons/yr	lb/hr															

# APPLICATION TO CONSTRUCT AN AIR POLLUTION EMITTING FACILITY

[illegible]

#### 4.0 REGULATORY APPLICABILITY ANALYSIS

In preparing and submitting this application, RDO has evaluated the applicability of state and Federal regulations to the facility-wide permit. Each subsection contains the applicability analysis for a specific subset of air quality regulations, as follows:

- Subsection 4.1 – Applicable and Inapplicable IDAPA 58.01.01 Requirements
- Subsection 4.2 – Applicable and Inapplicable Federal Air Quality Regulations – General
- Subsection 4.3 – Applicable and Inapplicable New Source Performance Standards (40 CFR Part 60)
- Subsection 4.4 – Applicable and Inapplicable National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
- Subsection 4.5 – Applicable and Inapplicable National Emission Standards for Hazardous Air Pollutants for Source Categories (40 CFR Part 63)
- Subsection 4.6 – Specific Applicable and Inapplicable Requirement Discussion

#### 4.1 Applicable and Inapplicable IDAPA 58.01.01 Requirements

Table 4-1 cites the applicable and inapplicable requirements of the Rules for the Control of Air Pollution in Idaho (IDAPA 58.01.01) for air emitting activities at RDO.

**Table 4-1 Applicable and Inapplicable IDAPA 58.01.01 Requirements**

Citation under IDAPA 58.01.01	Title	Compliance Determination Method (Record Keeping, Monitoring, Reporting, Test Method)	Applicable Yes or No	In Compliance Yes or No	Explanation Code and/or Additional Information
000	LEGAL AUTHORITY General Applicability	N/A	No	N/A	No substantive requirements (Note B)
001	TITLE AND SCOPE General Applicability	N/A	No	N/A	No substantive requirements (Note B)
002	WRITTEN INTERPRETATIONS General Applicability	N/A	No	N/A	No substantive requirements (Note B)
003	ADMINISTRATIVE APPEALS General Applicability	N/A	Yes	N/A	No substantive requirements
004	CATCHLINES General Applicability	N/A	Yes	N/A	No substantive requirements
005	DEFINITIONS General Applicability	N/A	Yes	N/A	No substantive requirements
006	GENERAL DEFINITIONS General Applicability	N/A	Yes	N/A	No substantive requirements
007	DEFINITIONS FOR THE PURPOSES OF SECTIONS 200 THROUGH 228 AND 400 THROUGH 461 General Applicability	N/A	Yes	N/A	400-461 facility not in source category  No requirements given

<b>Citation under IDAPA 58.01.01</b>	<b>Title</b>	<b>Compliance Determination Method (Record Keeping, Monitoring, Reporting, Test Method)</b>	<b>Applicable Yes or No</b>	<b>In Compliance Yes or No</b>	<b>Explanation Code and/or Additional Information</b>
008	DEFINITIONS FOR THE PURPOSES OF SECTIONS 300 THROUGH 386 General Applicability	N/A	Yes	N/A	No substantive requirements
009	DEFINITIONS FOR THE PURPOSES OF 40 CFR PART 60 General Applicability	N/A	Yes	N/A	No substantive requirements
010	DEFINITIONS FOR THE PURPOSES OF 40 CFR PART 61 AND 40 CFR PART 63	N/A	Yes	N/A	No substantive requirements
011	DEFINITIONS FOR THE PURPOSE OF SECTIONS 790 THROUGH 799	N/A	No	N/A	(Note D)
106	ABBREVIATIONS General Applicability	N/A	Yes	N/A	No substantive requirements
107	INCORPORATIONS BY REFERENCE General Applicability	N/A	Yes	N/A	No substantive requirements
121	COMPLIANCE REQUIREMENTS BY DEQ General Applicability	As specified for individual requirements	Yes	Yes	
122	INFORMATION ORDERS BY DEQ General Applicability	N/A	No	N/A	(Note B)
123	CERTIFICATION OF DOCUMENTS General Applicability	Recordkeeping	Yes	Yes	
124	TRUTH, ACCURACY AND COMPLETENESS OF DOCUMENTS General Applicability	Recordkeeping	Yes	Yes	
125	FALSE STATEMENTS General Applicability	Recordkeeping	Yes	Yes	
126	TAMPERING General Applicability	Recordkeeping	Yes	Yes	
127	FORMAT OF RESPONSES General Applicability	Recordkeeping	Yes	Yes	
128	CONFIDENTIAL INFORMATION General Applicability	Recordkeeping	Yes	Yes	
130-136	UPSET, BREAKDOWN, AND EXCESS EMISSIONS REQUIREMENTS	Reporting/Recordkeeping	Yes	Yes	
140-149	VARIANCE PROCEDURES and PETITIONS General Applicability	N/A	No	N/A	(Notes A,C)
155	CIRCUMVENTION General Applicability	Recordkeeping	Yes	Yes	No installation or use of any device conceals an emission of air pollutants.
156	TOTAL COMPLIANCE General Applicability	Recordkeeping	Yes	Yes	
157	TEST METHODS AND PROCEDURES General Applicability	Recordkeeping	Yes	Yes	
160	PROVISIONS GOVERNING SPECIFIC ACTIVITIES AND CONDITIONS General Applicability	Recordkeeping	Yes	Yes	
161	TOXIC SUBSTANCES General Applicability	Recordkeeping	Yes	Yes	(Note A)
162	MODIFYING PHYSICAL CONDITIONS General Applicability	N/A	No	N/A	(Note B)

Citation under IDAPA 58.01.01	Title	Compliance Determination Method (Record Keeping, Monitoring, Reporting, Test Method)	Applicable Yes or No	In Compliance Yes or No	Explanation Code and/or Additional Information
163	SOURCE DENSITY	N/A	No	N/A	(Note B)
164	POLYCHLORINATED BIPHENYLS (PCBS) Requirements or Standards: Prohibits burning PCB containing materials, in quantities greater than five (5) ppm, except for disposal.	N/A	No	N/A	(Note F)
175-180	PROCEDURES AND REQUIREMENTS FOR PERMITS ESTABLISHING A FACILITY EMISSIONS CAP	N/A	No	N/A	
181	NOTICE AND RECORD-KEEPING OF ESTIMATES OF AMBIENT CONCENTRATIONS	N/A	No	N/A	
200 - 202	PROCEDURES AND REQUIREMENTS FOR PERMITS TO CONSTRUCT General Applicability	Reporting/Recordkeeping	Yes	Yes	
203	PERMIT REQUIREMENTS FOR NEW AND MODIFIED STATIONARY SOURCES	N/A	No	N/A	
204	PERMIT REQUIREMENTS FOR NEW MAJOR FACILITIES OR MAJOR MODIFICATIONS IN NONATTAINMENT AREAS	N/A	No	N/A	
205	PERMIT REQUIREMENTS FOR NEW MAJOR FACILITIES OR MAJOR MODIFICATIONS IN ATTAINMENT OR UNCLASSIFIABLE AREAS	N/A	Yes	N/A	
206 - 208	OPTIONAL OFFSETS FOR PERMITS TO CONSTRUCT; EMISSION REDUCTION CREDIT; NET AIR QUALITY BENEFIT	N/A	No	N/A	(Note C)
209	PROCEDURES FOR ISSUING PERMITS	N/A	No	N/A	(Note B)
210	DEMONSTRATION OF PRECONSTRUCTION COMPLIANCE WITH TOXIC STANDARDS	Recordkeeping/Reporting	Yes	Yes	
211	CONDITIONS FOR PERMITS TO CONSTRUCT	N/A	No	N/A	(Note B)
212	OBLIGATION TO COMPLY	Specific for each requirement	Yes	Yes	
213	PRE-PERMIT CONSTRUCTION	N/A	No	N/A	(Notes C, D)
214	DEMONSTRATION OF PRECONSTRUCTION COMPLIANCE FOR NEW AND RECONSTRUCTED SOURCES OF HAZARDOUS AIR POLLUTANTS	N/A	No	N/A	(Note D)
220 - 223	EXEMPTIONS FROM PERMIT TO CONSTRUCT REQUIREMENTS	N/A	No	N/A	(Note C, D)
224 - 227	FEES	N/A	Yes	Yes	Fees will be paid.
228	APPEALS	N/A	N/A	N/A	
300-316	PROCEDURES AND REQUIREMENTS FOR TIER I OPERATING PERMITS General Applicability	All	Yes	Yes	

Citation under IDAPA 58.01.01	Title	Compliance Determination Method (Record Keeping, Monitoring, Reporting, Test Method)	Applicable Yes or No	In Compliance Yes or No	Explanation Code and/or Additional Information
317	INSIGNIFICANT ACTIVITIES	None	Yes	Yes	Insignificant activities have no applicable requirements
321	TIER I OPERATING PERMIT CONTENT General Applicability	All	No	N/A	This is not a Tier I permit application.
322	STANDARD CONTENTS OF TIER I OPERATING PERMITS General Applicability to Tier I Sources	N/A	No	N/A	
325	ADDITIONAL CONTENTS OF TIER I OPERATING PERMITS - PERMIT SHIELD General Applicability to Tier I Sources	N/A	No	N/A	
332	EMERGENCY AS AFFIRMATIVE DEFENSE REGARDING EXCESS EMISSIONS. General Applicability to Tier I Sources	Reporting/Recordkeeping	No	N/A	
335	GENERAL TIER I OPERATING PERMITS AND AUTHORIZATIONS TO OPERATE	N/A	No	N/A	(Note B)
336	TIER I OPERATING PERMITS FOR TIER I PORTABLE SOURCES	N/A	No	N/A	
360-368	STANDARD PROCESSING OF TIER I OPERATING PERMIT APPLICATIONS General Applicability to Tier I Sources	N/A	No	N/A	
369	TIER I OPERATING PERMIT RENEWAL General Applicability to Tier I Sources	N/A	No	N/A	
380-386	CHANGES TO TIER I OPERATING PERMITS General Applicability to Tier I Sources	N/A	No	N/A	
387 - 397	FEES	N/A	No	N/A	
400-406	PROCEDURES AND REQUIREMENTS FOR TIER II OPERATING PERMITS	N/A	Yes	Yes	
407 - 410	FEES	N/A	Yes	Yes	Fees will be paid.
440	REQUIREMENTS FOR ALTERNATIVE EMISSION LIMITS (BUBBLES)	N/A	No	N/A	(Note C)
441	DEMONSTRATION OF AMBIENT EQUIVALENCE	N/A	No	N/A	(Note C)
460-461	REQUIREMENTS FOR EMISSION REDUCTION and BANKING EMISSION REDUCTION CREDITS	N/A	No	N/A	(Note C)
500	REGISTRATION PROCEDURES AND REQUIREMENTS FOR PORTABLE EQUIPMENT	N/A	No	N/A	(Note D)
510	STACK HEIGHTS AND DISPERSION TECHNIQUES	Air Dispersion Modeling; Recordkeeping, Reporting	Yes	Yes	See 511-516
511	APPLICABILITY	Recordkeeping	Yes	Yes	
512	DEFINITIONS	Recordkeeping	Yes	Yes	



Citation under IDAPA 58.01.01	Title	Compliance Determination Method (Record Keeping, Monitoring, Reporting, Test Method)	Applicable Yes or No	In Compliance Yes or No	Explanation Code and/or Additional Information
513	REQUIREMENTS	Recordkeeping	Yes	Yes	
514	OPPORTUNITY FOR PUBLIC HEARING	N/A	No	No	(Note B)
515	APPROVAL OF FIELD STUDIES AND FLUID MODELS	N/A	No	No	Administrative and/or procedural
516	NO RESTRICTION ON ACTUAL STACK HEIGHT	N/A	Yes	N/A	No substantive requirements
550-553 & 556-561	AIR POLLUTION EMERGENCY RULE	N/A	No	N/A	Applicability is case-by-case
562	SPECIFIC EMERGENCY EPISODE ABATEMENT PLANS FOR POINT SOURCES	N/A	No	N/A	RDO has not been required by the Department to prepare an Emergency Episode Abatement Plan. (Note B)
563 - 574	TRANSPORTATION CONFORMITY	N/A	No	N/A	(Notes C, D)
575-581	AIR QUALITY STANDARDS AND AREA CLASSIFICATION	Air Dispersion Modeling and Monitoring	Yes	Yes	
582	INTERIM CONFORMITY PROVISIONS FOR NORTHERN ADA COUNTY FORMER NON-ATTAINMENT AREA FOR PM-10	N/A	No	N/A	(Note D)
585-586	TOXIC AIR POLLUTANTS NON-CARCINOGENIC & CARCINOGENIC INCREMENTS	Recordkeeping/Reporting	Yes	Yes	(Note A)
587	LISTING OR DELISTING TOXIC AIR POLLUTANT INCREMENTS	N/A	No	N/A	(Note A, C)
590	NEW SOURCE PERFORMANCE STANDARDS	N/A	Yes	Yes	See specific comments on specific NSPS in Subsections 4.3 and 4.6
591	NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS	N/A	No	N/A	
600-603 & 606-609	RULES FOR CONTROL OF OPEN BURNING	N/A	No	N/A	(Note F)
610	INDUSTRIAL FLARES	N/A	Yes	N/A	No substantive requirements
611-617	RULES FOR CONTROL OF OPEN BURNING	N/A	No	N/A	(Note F)
625	VISIBLE EMISSIONS	Monitoring, Reporting, Recordkeeping	Yes	Yes	A person shall not emit an air pollutant from any point of emission for a period or periods aggregating more than 3 minutes in any 60 minute period which is greater than 20% opacity.
626	GENERAL RESTRICTIONS ON VISIBLE EMISSIONS FROM WIGWAM BURNERS	N/A	No	N/A	Facility does not have this emissions unit.
650-651	RULES FOR CONTROL OF FUGITIVE DUST	Reasonable steps taken to control or mitigate fugitive dust	Yes	Yes	Reasonable precautions are utilized to control fugitive emissions at this facility. This is not applicable to any

Citation under IDAPA 58.01.01	Title	Compliance Determination Method (Record Keeping, Monitoring, Reporting, Test Method)	Applicable Yes or No	In Compliance Yes or No	Explanation Code and/or Additional Information
					point source.
675	FUEL BURNING EQUIPMENT - PARTICULATE MATTER Facility operates fuel burning equipment.		Yes	Yes	See rules 676-680
676	STANDARDS FOR NEW SOURCES	Recordkeeping	Yes	Yes	
677	STANDARDS FOR MINOR AND EXISTING SOURCES	N/A	No	N/A	(Note D)
678-680	COMBINATIONS OF FUELS	N/A	No	N/A	(Note C)
681	TEST METHODS AND PROCEDURES	Use of required test procedure(s)	Yes	Yes	
700	PARTICULATE MATTER -- PROCESS WEIGHT LIMITATIONS.		Yes	Yes	See rules 701-703
701	PARTICULATE MATTER -- NEW EQUIPMENT PROCESS WEIGHT LIMITATIONS.	Monitoring and Testing	Yes	Yes	(Note A)
702	PARTICULATE MATTER -- EXISTING EQUIPMENT PROCESS WEIGHT LIMITATIONS	Monitoring and Testing	Yes	Yes	(Note A)
703	PARTICULATE MATTER -- OTHER PROCESSES	N/A	No	N/A	(Note D)
725	RULES FOR SULFUR CONTENT OF FUELS General Applicability	N/A	Yes	N/A	Applies to distillate and residual fuel used by RDO.
726	DEFINITIONS AS USED IN SECTIONS 727 THROUGH 729	N/A	Yes	N/A	
727	RESIDUAL FUEL OILS	N/A	Yes	N/A	
728	DISTILLATE FUEL	N/A	Yes	N/A	
729	COAL	N/A	No	N/A	(Note E)
750-751	RULES FOR CONTROL OF FLUORIDE EMISSIONS	Monitoring and Testing	N/A	N/A	(Note C)
760-764	RULES FOR CONTROL OF AMMONIA FROM DAIRY FARMS	N/A	No	N/A	
775-776	RULES FOR CONTROL OF ODORS General Applicability	RDO will investigate any odor complaint or identified issue.	Yes	N/A	(Note A); No substantive requirements for regulated units or activities.
785-787	RULES FOR CONTROL OF INCINERATORS	N/A	No	N/A	(Note D)
790 - 802	RULES AND EMISSION STANDARDS FOR CONTROL OF NONMETALLIC MINERAL PROCESSING PLANTS	N/A	No	N/A	(Note D)
805-808	RULES FOR CONTROL OF HOT-MIX ASPHALT PLANTS	N/A	No	N/A	(Note D)
815-826	RULES FOR CONTROL OF KRAFT PULPING MILLS	N/A	No	N/A	(Note D)
835-839	RULES FOR CONTROL OF RENDERING PLANTS	N/A	No	N/A	(Note D)
845-848	RULES FOR CONTROL OF SULFUR OXIDE EMISSIONS FROM SULFURIC ACID PLANTS	N/A	No	N/A	(Note D)

Citation under IDAPA 58.01.01	Title	Compliance Determination Method (Record Keeping, Monitoring, Reporting, Test Method)	Applicable Yes or No	In Compliance Yes or No	Explanation Code and/or Additional Information
855-858	COMBINED ZINC AND LEAD SMELTERS	N/A	No	N/A	(Note D)
859	STANDARDS OF PERFORMANCE FOR MUNICIPAL SOLID WASTE LANDFILLS THAT COMMENCED CONSTRUCTION.....MAY 30, 1991	N/A	No	N/A	(Note D)
860	EMISSION GUIDELINES FOR MUNICIPAL SOLID WASTE LANDFILLS THAT COMMENCED CONSTRUCTION.....MAY 30, 1991	N/A	No	N/A	(Note D)
861	STANDARDS OF PERFORMANCE FOR HOSPITAL/MEDICAL/INFECTIOUS WASTE INCINERATORS THAT COMMENCED CONSTRUCTION.....MARCH 16, 1998	N/A	No	N/A	(Note D)
862	EMISSION GUIDELINES FOR HOSPITAL/MEDICAL/INFECTIOUS WASTE INCINERATORS THAT COMMENCED CONSTRUCTION BEFORE JUNE 20, 1996	N/A	No	N/A	(Note D)

**APPLICABILITY EXPLANATION CODES**

N/A Not Applicable

A - State only.

B - Regulation applies to regulatory authority.

C - Currently there are no projects or circumstances existing at the facility that would subject RDO to these provisions; however, RDO may use these provisions in the future if the circumstances arise.

D - Facility is not in this source category.

E - Facility does not use this fuel type.

F - Facility does not conduct this activity.

## 4.2 Applicable and Inapplicable Federal Air Quality Regulations – General

Table 4-2 cites applicable and inapplicable Federal Air Quality regulations provided in Title 40 of the Code of Federal Regulations (40 CFR).

**Table 4-2 Applicable and Inapplicable 40 CFR Regulations**

Citation under Federal Regulations	Title	Compliance Determination Method (Record Keeping, Monitoring, Reporting, Test Method)	Applicable Yes or No	In Compliance Yes or No	Explanation Code and/or Additional Information
40 CFR Part 50	National Primary and Secondary Ambient Air Quality Standards	N/A	No	N/A	(Note A)
40 CFR Part 51	Requirements for Preparation, Adoption, and Submittal of Implementation Plans	N/A	No	N/A	(Note A)
40 CFR Part 52	Approval and Promulgation of Implementation Plans	N/A	No	N/A	(Notes A, C)
40 CFR Part 53	Ambient Air Monitoring Reference and Equivalent Methods	N/A	No	N/A	(Note B)
40 CFR Part 54	Prior Notice of Citizen Suits	N/A	No	N/A	Rules govern citizen suit actions.
40 CFR Part 55	Outer Continental Shelf Air Regulations	N/A	No	N/A	Rules govern Outer Continental Shelf activities.
40 CFR Part 56	Regional Consistency	N/A	No	N/A	(Note A)
40 CFR Part 57	Primary Nonferrous Smelter Orders	N/A	No	N/A	(Note C)
40 CFR Part 58	Ambient Air Quality Surveillance	N/A	No	N/A	Ambient air quality surveillance is not required at this facility.
40 CFR 59	National Volatile Organic Compound Emission Standards for Consumer and Commercial Products	N/A	No	N/A	(Note C)
40 CFR Part 60	Standards of Performance for New Stationary Sources	N/A	Yes	Yes	NSPS Subpart Db will apply to the boiler after re-rating to 150 MMBtu/hr. Subpart Kb applies to tanks.
40 CFR Part 61	National Emission Standards for Hazardous Air Pollutants	N/A	No	N/A	NESHAPs do not apply (Note C)
40 CFR Part 62	Approval and Promulgation of State Plans for Designated Facilities and Pollutants	N/A	No	N/A	(Note A)
40 CFR Part 63	National Emission Standards for Hazardous Air Pollutants for Source Categories	N/A	No	N/A	NESHAPs do not apply (Note C)
40 CFR Part 64	Compliance Assurance Monitoring	N/A	No	N/A	(Note C); see discussion below.
40 CFR Part 65	Consolidated Federal Air Program	N/A	No	N/A	(Note A)
40 CFR Part 66	Assessment and Collection of Noncompliance Penalties by EPA	N/A	No	N/A	(Note A)
40 CFR Part 67	EPA Approval of State Noncompliance Penalty Program	N/A	No	N/A	(Note A)
40 CFR Part 68	Chemical Accident Prevention Provisions	N/A	No	N/A	
40 CFR Part 69	Special Exemptions from Requirements of the Clean Air Act	N/A	No	N/A	(Note A)

Citation under Federal Regulations	Title	Compliance Determination Method (Record Keeping, Monitoring, Reporting, Test Method)	Applicable Yes or No	In Compliance Yes or No	Explanation Code and/or Additional Information
40 CFR Part 70	State Operating Permit Programs	N/A	No	N/A	(Note A)
40 CFR Part 71	Federal Operating Permit Programs	N/A	No	N/A	(Note A)
40 CFR Part 72	Permits Regulation	N/A	No	N/A	(Note A)
40 CFR Part 73	Sulfur Dioxide Allowance System	N/A	No	N/A	(Note C)
40 CFR Part 74	Sulfur Dioxide Opt-Ins	N/A	No	N/A	(Note C)
40 CFR Part 75	Continuous Emission Monitoring	N/A	No	N/A	(Note C)
40 CFR Part 76	Acid Rain Nitrogen Oxides Emission Reduction Program	N/A	No	N/A	(Note C)
40 CFR Part 77	Excess Emissions	N/A	No	N/A	(Note C)
40 CFR Part 78	Appeal Procedures for Acid Rain Program	N/A	No	N/A	(Note C)
40 CFR Part 79	Registration of Fuels and Fuel Additives	N/A	No	N/A	(Note C)
40 CFR Part 80	Regulation of Fuels and Fuel Additives	N/A	No	N/A	(Note C)
40 CFR Part 81	Designation of Areas for Air Quality Planning Purposes	N/A	No	N/A	(Note A)
40 CFR Part 82, Subparts A – E; G-H	Protection of Stratospheric Ozone	N/A	No	N/A	(Note C)
40 CFR Part 82, Subpart F	Protection of Stratospheric Ozone; Recycling and Emissions Reduction	Recordkeeping	No	N/A	
40 CFR Part 85	Control of Air Pollution from Mobile Sources	N/A	No	N/A	(Note C)
40 CFR Part 86	Control of Emissions from New and In-Use Highway Vehicles and Engines	N/A	No	N/A	(Note C)
40 CFR Part 87	Control of Air Pollution from Aircraft and Aircraft Engines	N/A	No	N/A	(Note C)
40 CFR Part 88	Clean-Fuel Engines	N/A	No	N/A	(Note C)
40 CFR Part 89	Control of Emissions from New and In-Use Non-road Compression-Ignition Engines	N/A	No	N/A	(Note C)
40 CFR Part 90	Control of Emissions from Non-road Spark-Ignition Engines at or Below 19 Kilowatts	N/A	No	N/A	(Note C)
40 CFR Part 91	Control of Emissions from Marine Spark Ignition Engines	N/A	No	N/A	(Note C)
40 CFR Part 92	Control of Air Pollution from Locomotives and Locomotive Engines	N/A	No	N/A	(Note C)
40 CFR Part 93	Determining Conformity of Federal Actions to State or Federal Implementation Plans	N/A	No	N/A	(Notes A,C)
40 CFR Part 94	Control of Emissions from Marine Compression-Ignition Engines	NA	No	N/A	(Note C)
40 CFR Part 95	Mandatory Patent Licenses	N/A	No	N/A	(Note C)
40 CFR Part 96	NO <sub>x</sub> Budget Trading	N/A	No	N/A	(Notes A, C)

Citation under Federal Regulations	Title	Compliance Determination Method (Record Keeping, Monitoring, Reporting, Test Method)	Applicable Yes or No	In Compliance Yes or No	Explanation Code and/or Additional Information
	Program for State Implementation Plan				
40 CFR Part 97	Federal NOx Budget Trading Program	N/A	No	N/A	(Note C)

#### APPLICABILITY EXPLANATION CODES

A - Regulation applies to regulatory authority.

B - Rules governing ambient air quality standards and/or monitoring or definitions of criteria for air pollution emergency purposes and do not apply to individual sources.

C - Facility is not in this source category.

### 4.3 Applicable and Inapplicable New Source Performance Standards (40 CFR Part 60)

Table 4-3 cites applicable and inapplicable New Source Performance Standards given in 40 CFR Part 60 (IDAPA 58.01.01.590).

**Table 4-3 Applicable and Inapplicable New Source Performance Standards  
(40 CFR Part 60)**

Rule Description - 40 CFR Part 60 - New Source Performance Standards	Applicable?
Large Municipal Waste Combustors that are Constructed on or Before September 20, 1994 (Subpart Cb)	No
Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills (Subpart Cc)	No
Emission Guidelines and Compliance Times for Sulfuric Acid Production Plants (Subpart Cd)	No
Emission Guidelines and Compliance Times for Hospital/Medical/Infectious Waste Incinerators (Subpart Ce)	No
Fossil fuel-fired Steam Generators (Subpart D)	No
Electric Utility Steam Generating Units (Subpart Da)	No
Industrial-Commercial-Institutional Steam Generating Units (Subpart Db)	Yes – See discussion below
Small Industrial-Commercial-Institutional Steam Generating Units (Subpart Dc)	No
Incinerators (Subpart E)	No
Municipal waste combustors (Subpart Ea)	No
Standards of Performance for Municipal Waste Combustors for Which Construction is Commenced After September 24, 1994 (Subpart Eb)	No
Standards of Performance for Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced After June 20, 1996 (Subpart Ec)	No
Portland cement plants (Subpart F)	No
Nitric Acid Plants (Subpart G)	No
Sulfuric Acid Plants (Subpart H)	No
Asphalt Concrete Plants (Subpart I)	No
Petroleum refineries (Subpart J)	No
Storage Vessels for Petroleum Liquids--for Construction, Reconstruction, or Modification, Commenced after June 11, 1973, and prior to May 19, 1978 (Subpart K)	No
Storage Vessels for Petroleum Liquids--for Construction, Reconstruction, or Modification, Commenced after May 18, 1978, and Prior to July 23, 1984 (Subpart Ka)	No
Volatile Organic Liquid Storage Vessels (including petroleum liquid storage vessels) for which construction, reconstruction, or modification commenced after July 23, 1984 (Subpart Kb)	Yes – See discussion below
Secondary Lead Smelters (Subpart L)	No
Secondary Brass and Bronze Ingot Production Plants (Subpart M)	No

Rule Description - 40 CFR Part 60 - New Source Performance Standards	Applicable?
Iron and Steel Plants (Primary Emissions from Basic Oxygen Furnaces Constructed after June 11, 1973) (Subpart N)	No
Iron and steel plants (secondary emissions from basic oxygen furnaces constructed after January 20, 1983) (Subpart Na)	No
Sewage Treatment Plants (Subpart O)	No
Primary Smelters: Copper (Subpart P)	No
Primary Smelters: Zinc (Subpart Q)	No
Primary Smelters: Lead (Subpart R)	No
Primary Aluminum Reduction Plants (Subpart S)	No
Wet process Phosphoric Acid Plants (Subpart T)	No
Superphosphoric Acid Plants (Subpart U)	No
Diammonium Phosphate Plants (Subpart V)	No
Triple Superphosphate Plants (Subpart W)	No
Granular Triple Superphosphate Storage Facilities (Subpart X)	No
Coal Preparation Plants (Subpart Y)	No
Ferroalloy Production Facilities (Subpart Z)	No
Steel Plants: Electric Arc Furnaces (Subpart AA)	No
Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels constructed after August 17, 1983 (Subpart AAa)	No
Kraft Pulp Mills (Subpart BB)	No
Glass Manufacturing Plants (Subpart CC)	No
Grain Elevators (Subpart DD)	No
Surface Coating of Metal Furniture (Subpart EE)	No
Stationary Gas Turbines (Subpart GG)	No
Lime Manufacturing Plants (Subpart HH)	No
Lead-acid Battery Manufacturing Plants (Subpart KK)	No
Metallic Mineral Processing Plants (Subpart LL)	No
Automobile and Light-duty Truck Surface Coating Operations (Subpart MM)	No
Phosphate Rock Plants (Subpart NN)	No
Ammonium Sulfate Manufacture Plants (Subpart PP)	No
Graphic Arts Industry: Publication Rotogravure Printing (Subpart QQ)	No
Pressure Sensitive Tape and Label Surface Coating Operations (Subpart RR)	No
Industrial Surface Coating: Large Appliances (Subpart SS)	No
Metal Coil Surface Coating (Subpart TT)	No
Asphalt processing and asphalt roofing manufacture (Subpart UU)	No
Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry (Subpart VV)	No
Beverage Can Surface Coating Industry (Subpart WW)	No
Bulk Gasoline Terminals (Subpart XX)	No
New Residential Wood Heaters (Subpart AAA)	No
Rubber Tire Manufacturing Industry (Subpart BBB)	No
Polymer Manufacturing Industry (Subpart DDD)	No
Flexible Vinyl and Urethane Coating and Printing (Subpart FFF)	No
Equipment Leaks of VOC in Petroleum Refineries (Subpart GGG)	No
Synthetic Fiber Production Facilities (Subpart HHH)	No
Synthetic Organic Chemical Manufacturing Industry Air Oxidation Unit Processes (Subpart III)	No
Petroleum Dry Cleaners (Subpart JJJ)	No
Onshore Natural Gas Processing Plants (Subpart KKK)	No
Onshore Natural Gas Processing: SO <sub>2</sub> Emissions (Subpart LLL)	No
Synthetic Organic Chemical Manufacturing Industry Distillation Operations (Subpart NNN)	No
Nonmetallic Mineral Processing Plants (Subpart OOO)	No
Wool Fiberglass Insulation Manufacturing Plants (Subpart PPP)	No
Petroleum Refinery Wastewater System VOC Emissions (Subpart QQQ)	No
Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes (Subpart RRR)	No
Magnetic Tape Coating Facilities (Subpart SSS)	No
Industrial surface coating: Plastic parts for business machines (Subpart TTT)	No
Calciners and Dryers in Mineral Industries (Subpart UUU)	No
Polymeric Coating of Supporting Substrates Facilities (Subpart VVV)	No
Standards of Performance for Municipal Solid Waste Landfills (Subpart WWW)	No
Standards of Performance for Small Municipal Waste Combustion Units for Which	No

Rule Description - 40 CFR Part 60 - New Source Performance Standards	Applicable?
Construction is Commenced After August 30, 1999 or for Which Modification or Reconstruction is Commenced After June 6, 2001 (Subpart AAAA)	
Subpart BBBB - Emission Guidelines and Compliance Times for Small Municipal Waste Combustion Units Constructed on or Before August 30, 1999	No
Subpart CCCC -- Standards of Performance for Commercial and Industrial Solid Waste Incineration Units for Which Construction Is Commenced After November 30, 1999 or for Which Modification or Reconstruction Is Commenced on or After June 1, 2001	No
Subpart DDDD -- Emissions Guidelines and Compliance Times for Commercial and Industrial Solid Waste Incineration Units that Commenced Construction On or Before November 30, 1999	No

#### APPLICABILITY EXPLANATION CODES

A - Regulation applies to regulatory authority.

B - Rules governing ambient air quality standards and/or monitoring or definitions of criteria for air pollution emergency purposes and do not apply to individual sources.

C - Facility is not in this source category.

#### 4.4 Applicable and Inapplicable National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)

Table 4-4 cites the applicable and inapplicable National Emission Standards for Hazardous Air Pollutants given in 40 CFR Part 61.

**Table 4-4 Applicable and Inapplicable National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)**

Rule Description - 40 CFR Part 61 - National Emission Standards for Hazardous Air Pollutants	Applicable?
Subpart A--General Provisions.	No
Subpart B--Radon Emissions from Underground Uranium Mines.	No
Subpart C--Beryllium.	No
Subpart D--Beryllium Rocket Motor Firing.	No
Subpart E--Mercury.	No
Subpart F--Vinyl Chloride.	No
Subpart H--Emissions of Radionuclides other than Radon from Department of Energy Facilities.	No
Subpart I--Radionuclide Emissions from Facilities Licensed by the Nuclear Regulatory Commission and Federal Facilities not covered by Subpart H.	No
Subpart J--Equipment Leaks (Fugitive Emission Sources) of Benzene.	No
Subpart K--Radionuclide Emissions from Elemental Phosphorus Plants.	No
Subpart L--Benzene Emissions from Coke By-Product Recovery Plants.	No
Subpart M--Asbestos.	No
Subpart N--Inorganic Arsenic Emissions from Glass Manufacturing Plants.	No
Subpart O--Inorganic Arsenic Emissions from Primary Copper Smelters.	No
Subpart P--Inorganic Arsenic Emissions from Arsenic Trioxide and Metallic Arsenic Production Facilities.	No
Subpart Q--Radon Emissions from Department of Energy Facilities.	No
Subpart R--Radon Emission from Phosphogypsum Stacks.	No
Subpart T--Radon Emissions from the Disposal of Uranium Mill Tailings.	No
Subpart V--Equipment Leaks (Fugitive Emission Sources).	No



<b>Rule Description - 40 CFR Part 61 - National Emission Standards for Hazardous Air Pollutants</b>	<b>Applicable?</b>
Subpart W--Radon Emissions from Operating Mill Tailings.	No
Subpart Y--Benzene Emissions from Benzene Storage Vessels.	No
Subpart BB--Benzene Emission from Benzene Transfer Operations.	No
Subpart FF--Benzene Waste Operations.	No

#### **4.5 Applicable and Inapplicable National Emission Standards for Hazardous Air Pollutants for Source Categories (40 CFR Part 63)**

Table 4-5 cites the applicable and inapplicable National Emission Standards for Hazardous Air Pollutants for Source Categories given in 40 CFR Part 63.

**Table 4-5 Applicable and Inapplicable National Emission Standards for Hazardous Air Pollutants for Source Categories (40 CFR Part 63)**

<b>Rule Description - 40 CFR Part 63- National Emission Standards for Hazardous Air Pollutants for Source Categories</b>	<b>Applicable? (Explanation )</b>
Subpart A – General Provisions	No – not in source category
Subpart F – SOCFI	No – not in source category
Subpart G – SOCFI – Process Vents, Storage Vessels, Transfer Operations	No – not in source category
Subpart H – SOCFI – Equipment Leaks	No – not in source category
Subpart I – Certain Processes Subject to the Negotiated Regulation for Equipment Leaks	No – not in source category
Subpart J – Polyvinyl Chloride and Copolymers Production	No – not in source category
Subpart L – Coke Oven Batteries	No – not in source category
Subpart M – Dry Cleaning Facilities Using Perchloroethylene	No – not in source category
Subpart N – Hard and Decorative Electroplating and Anodizing	No – not in source category
Subpart O – Ethylene Oxide Sterilization	No – not in source category
Subpart Q – Industrial Process Cooling Towers	No – not in source category
Subpart R – Gasoline Distribution (Bulk Gasoline Terminals and Pipeline Breakout Stations)	No – not in source category
Subpart S – Pulp and Paper Industry	No – not in source category
Subpart T – Halogenated Solvent Cleaning	No – not in source category
Subpart U – Group I Polymers and Resins	No – not in source category
Subpart W – Epoxy Resins and Non-Nylon Polyamides Production	No – not in source category
Subpart X – Secondary Lead Smelting	No – not in source category
Subpart Y – Marine Tank Vessel Loading Operations	No – not in source category
Subpart AA – National Emission Standards for Hazardous Air Pollutants From Phosphoric Acid Manufacturing Plants	No – not in source category
Subpart BB – National Emission Standards for Hazardous Air Pollutants From Phosphate Fertilizers Production Plants	No – not in source category
Subpart CC – National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries	No – not in source category
Subpart DD – National Emission Standards for Hazardous Air Pollutants from Off-Site Waste and Recovery Operations	No – not in source category
Subpart EE – National Emission Standards for Magnetic Tape Manufacturing Operations	No – not in source category

<b>Rule Description - 40 CFR Part 63- National Emission Standards for Hazardous Air Pollutants for Source Categories</b>	<b>Applicable? (Explanation )</b>
Subpart GG – National Emission Standards for Aerospace Manufacturing and Rework Facilities	No – not in source category
Subpart HH – National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities	No – not in source category
Subpart II – National Emission Standards for Shipbuilding and Ship Repair (Surface Coating)	No – not in source category
Subpart JJ – National Emission Standards for Wood Furniture Manufacturing Operations	No – not in source category
Subpart KK – National Emission Standards for the Printing and Publishing Industry	No – not in source category
Subpart LL – National Emission Standards for Hazardous Air Pollutants for Primary Aluminum Reduction Plants	No – not in source category
Subpart MM – National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills	No – not in source category
Subpart OO – National Emission Standards for Tanks – Level 1	No – not in source category
Subpart PP – National Emission Standards for Containers	No – not in source category
Subpart QQ – National Emission Standards for Surface Impoundments	No – not in source category
Subpart RR – National Emission Standards for Individual Drain Systems	No – not in source category
Subpart SS – National Emission Standards for Closed Vent Systems, Control Devices, Recovery Devices, and Routing to a Fuel Gas System or a Process	No – not in source category
Subpart TT – National Emission Standards for Equipment Leaks – Control Level 1	No – not in source category
Subpart UU – National Emission Standards for Equipment Leaks – Control Level 2 Standards	No – not in source category
Subpart VV – National Emission Standards for Oil-Water Separators and Organic-Water Separators	No – not in source category
Subpart WW – National Emission Standards for Storage Vessels (Tanks) – Control Level 2	No – not in source category
4.5.1.A.1 Subpart XX -- National Emission Standards for Ethylene Manufacturing Process Units: Heat Exchange Systems and Waste Operations	No – not in source category
Subpart YY – National Emission Standards for Hazardous Air Pollutants for Source Categories: Generic Maximum Achievable Control Technology Standards	No – not in source category
Subpart CCC – National Emission Standards for Hazardous Air Pollutants for Steel Pickling – HCl Process Facilities and Hydrochloric Acid Regeneration Units	No – not in source category
Subpart DDD – National Emission Standards for Hazardous Air Pollutants for Mineral Wool Production	No – not in source category
Subpart GGG – Pharmaceuticals Production	No – not in source category
Subpart JJJ – Polymer and resins II	No – not in source category
Subpart HHH – Natural Gas Transmission and Storage	No – not in source category
Subpart III – Flexible Polyurethane Foam Production	No – not in source category
Subpart LLL – Portland Cement Manufacturing	No – not in source category
Subpart MMM – Pesticide Active Ingredient Production	No – not in source category
Subpart NNN – Wool Fiberglass Manufacturing	No – not in source category
Subpart OOO – Polymers and Resins, III Amino Resins, Phenolic Resins	No – not in source category
Subpart PPP – Polyether Polyols Production	No – not in source category
Subpart QQQ – Primary Copper	No – not in source category
Subpart RRR – Secondary Aluminum	No – not in source category
Subpart TTT – Primary Lead Smelting	No – not in source category
Subpart UUU – Petroleum Refineries	No – not in source category
Subpart VVV – POTWs	No – not in source category
Subpart XXX – Ferroalloys Production	No – not in source category
Subpart AAAA – Municipal Solid Waste Landfills	No – not in source category
Subpart CCCC – Manufacturing Nutritional Yeast	No – not in source category
Subpart GGGG – Solvent Extraction for Vegetable Oil	No – not in source category
Subpart HHHH – Wet Formed Fiberglass Mat Production	No – not in source category
Subpart JJJJ – Paper and Other Web	No – not in source category
Subpart NNNN – Large Appliance	No – not in source category
Subpart SSSS – Metal Coil	No – not in source category
Subpart TTTT – Leather Finishing Operations	No – not in source category
Subpart UUUU – Cellulose Production Manufacturing	No – not in source category
Subpart VVVV – Boat Manufacturing	No – not in source category
Subpart XXXX – Tire Manufacturing	No – not in source category
Subpart QQQQ – Friction Products Manufacturing	No – not in source category

## 4.6 Specific Applicable Requirement Discussion

Table 4-6 below discusses in more detail the specific applicable and inapplicable requirements for RDO:

**Table 4-6 Specific Applicable and Inapplicable Requirements**

Citation	Explanation of Applicability
40 CFR 60.40b Subpart Db. Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.	<p>60.40b(a): Subpart Db applies to steam generating units that commenced construction, modification, or reconstruction after June 19, 1984, and that have a heat input capacity greater than 100 MMBtu/hr. The maximum steam generating capacity of the boiler is 150 MMBtu/hr.</p> <p>60.42b(a): By installing a scrubber to control sulfur dioxide emissions, RDO will comply with the sulfur dioxide standards of 60.42b (90 percent reduction). The new NSPS (92% reduction) does not apply to boiler No. 1 since the boiler was not modified after February 28, 2005.</p> <p>60.43b(b): Particulate matter shall not exceed 0.10 lb/MMBtu heat input. The new PM standard of 0.03lb/MMBtu heat input does not apply to RDO because the re-rating is not considered to be a modification since the boiler is being re-rated to its pre-February 28, 2005 configuration. The boiler was already designed to operated at 148 MMBtu/hr. Additionally, boiler No. 1 has always had the capability to burn #6 residual fuel.</p> <p>60.43b(f): Opacity shall not exceed 20% (6-minute average), except for one 6-minute period per hour of not more than 27% opacity.</p> <p>60.44b(a): The NOx emissions at the facility shall not exceed:</p> <ul style="list-style-type: none"> <li>0.40 lb/MMBtu heat input for burning residual fuel at high heat release rate.</li> <li>0.30 lb/MMBtu heat input for burning residual fuel at low heat release rate.</li> </ul>
40 CFR 60.40b Subpart Kb. Standards of Performance for Volatile Organic Liquid Vessels for which Construction, Reconstruction or Modification Commenced After July 23, 1984.	<p>60.110b(b) and (c): Storage vessels with a capacity of less than 19,800 gallons and stage vessels with a capacity of greater than 19,800 gallons and less than 39,890 gallons and with a maximum true vapor pressure of less than 15 kilopascals (kPa) are exempt from the general provisions of 40 CFR 60 and from most of the portions of Subpart Kb. Tanks equal to or greater than 39,890 gallons but less than 3.5 kPa are also exempt from most Kb portions. The two tanks are 30,000 gallons each, but the maximum pressure is 0.055 kPa. Therefore the tanks at the facility qualify for exemptions except as noted below:</p> <ul style="list-style-type: none"> <li>60.116b(b): The facility will keep readily accessible records showing the dimensions of the tanks and an analysis showing the capacity of the tanks.</li> <li>These records will be kept at the facility for the life of the tanks as provided in 60.116b(a).</li> </ul>
40 CFR 61 & 63 National Emission Standards for Hazardous Air Pollutants & MACT	<p>Beryllium is emitted in very small quantities but exceeds the significant level of 0.0004 tons / year. Modeling was performed as required when significant levels are exceeded. However, the ambient toxic screening level for beryllium is met and the beryllium NESHAP applies to specific types of facilities, to which RDO does not belong.</p>

## 5.0 EMISSIONS INFORMATION AND DOCUMENTATION

This section includes all criteria and toxic air pollutant calculations.

### 5.1 Emission Inventory

Table 5-1 below shows the emission inventory for criteria pollutants.

**Table 5-1 Emission Inventory for RDO**

Source	Pollutant											
	PM		PM-10		VOC		SO <sub>2</sub>		NO <sub>x</sub>		CO	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Boiler No. 1	21.66	94.85	21.66	94.85	1.33	5.84	28.60	125.27	48.93	214.30	5.21	22.80
Boiler No. 2	0.05	0.21	0.05	0.21	0.04	0.15	0.004	0.02	0.64	2.79	0.54	2.35
Cyclone	0.13	0.57	0.07	0.29								
Drum Dryer 1	1.95	8.54	1.95	8.54			0.01	0.05				
Drum Dryer 2	1.95	8.54	1.95	8.54			0.01	0.05				
Drum Dryer 3	1.95	8.54	1.95	8.54			0.01	0.05				
Drum Dryer 4	1.95	8.54	1.95	8.54			0.01	0.05				
Drum Dryer 5	1.95	8.54	1.95	8.54			0.01	0.05				
Drum Dryer 6	1.95	8.54	1.95	8.54			0.01	0.05				
Drum Dryer 7	1.95	8.54	1.95	8.54			0.01	0.05				
Drum Dryer 8	1.95	8.54	1.95	8.54			0.01	0.05				
Drum Dryer 9	1.95	8.54	1.95	8.54			0.01	0.05				
Drum Dryer 10	1.95	8.54	1.95	8.54			0.01	0.05				
Drum Dryer 11	1.95	8.54	1.95	8.54			0.01	0.05				
Drum Dryer 12	1.95	8.54	1.95	8.54			0.01	0.05				
National Dryer Process Emissions	1.71	7.49	1.71	7.49			0.081	0.35				
Fluidized Bed Dryer	3.53	15.48	3.53	15.48	0.02	0.11	0.09	0.38	0.67	2.94	0.38	1.66
Flake Packaging Bulk Line	0.120	0.53	0.120	0.53								
Flake Packaging Line	0.08	0.35	0.080	0.35								
Flake Packaging Torit Line	0.08	0.35	0.08	0.35								
Flake Packaging Drum Negative Air Baghouse	0.180	0.79	0.180	0.79								
National Dryer A1	0.03	0.12	0.03	0.12	0.02	0.09	0.06	0.26	0.55	2.39	0.30	1.32
National Dryer A2	0.03	0.12	0.03	0.12	0.02	0.09	0.06	0.26	0.55	2.39	0.30	1.32
National Dryer B	0.03	0.12	0.03	0.12	0.02	0.09	0.06	0.26	0.55	2.39	0.30	1.32
National Dryer C	0.03	0.12	0.03	0.12	0.02	0.09	0.06	0.26	0.55	2.39	0.30	1.32
Propane Heaters	0.03	0.12	0.03	0.12	0.02	0.09	0.06	0.26	0.68	3.00	0.30	1.32
Tanks						0.0012						
<b>TOTAL</b>	<b>51.08</b>	<b>223.71</b>	<b>51.01</b>	<b>223.43</b>	<b>1.49</b>	<b>6.53</b>	<b>29.19</b>	<b>127.87</b>	<b>53.11</b>	<b>232.60</b>	<b>7.63</b>	<b>33.42</b>

## 5.2 Emission Calculations

### Process Weight

The following process weight calculations have been made:

**Table 5-2 Process Weight Calculations**

Source	Process Weight, lb/hr*	E, Emission Limit, lb/hr	PM, lb/hr	Meet E?
Cyclone	1,750	3.972	0.13	Yes
Drum Dryer 1	7,500	9.512	8.54	Yes
Drum Dryer 2	7,500	9.512	8.54	Yes
Drum Dryer 3	7,500	9.512	8.54	Yes
Drum Dryer 4	7,500	9.512	8.54	Yes
Drum Dryer 5	7,500	9.512	8.54	Yes
Drum Dryer 6	7,500	9.512	8.54	Yes
Drum Dryer 7	7,500	9.512	8.54	Yes
Drum Dryer 8	7,500	9.512	8.54	Yes
Drum Dryer 9	7,500	9.512	8.54	Yes
Drum Dryer 10	7,500	9.512	8.54	Yes
Drum Dryer 11	7,500	9.512	8.54	Yes
Drum Dryer 12	7,500	9.512	8.54	Yes
Fluidized Bed Dryer	10,000	11.000	3.50	Yes
National Dryer	7,500	9.512	1.71	Yes
Flake Packaging Bulk Line	12,000	11.513	0.120	Yes
Flake Packaging Line	8,000	9.887	0.35	Yes
Flake Packaging Torit Line	8,000	9.887	0.35	Yes
Flake Packaging Drum Negative Air Baghouse	18,000	12.741	0.79	Yes

$$E = 0.045(PW)^{0.60}$$

$$E = 1.10*(PW)^{0.25}$$

E= Emission Limit < 9,250 lb/hr PW

E= Emission Limit ≥ 9,250 lb/hr PW

\*A ratio of 5:1 raw/final product was used for the dryers

## **Grain Loading**

Table 5-3 below shows the estimated grain loading concentrations for the boilers, in accordance with IDAPA 58.01.01.676 and 677. The table below shows that RDO meets fuel combustion grain loading requirements.

**Table 5-3 Grain Loading Emissions**

Source	PM, lb/hr	Flow rate, dscf/m @3% O <sub>2</sub>	Grain Loading, g/dscf @ 3%	Grain Loading Standard, grain/dscf	Meet Grain Loading Standard?
Boiler No. 1, Residual	10.05	25,758	0.0279	0.05	Yes
Boiler No. 1, Propane	0.55	24,407	0.0046	0.015	Yes
Boiler No. 2, Propane	0.05	1400	0.0052	0.015	Yes
Fluidized Bed Dryer*	0.03	763	0.0052	0.015	Yes
Propane Heater 1	0.01	203	0.0052	0.015	Yes
Propane Heater 2	0.01	203	0.0052	0.015	Yes
Propane Heater 3	0.01	203	0.0052	0.015	Yes
Dryer A1*	0.03	610	0.0052	0.015	Yes
Dryer A2*	0.03	610	0.0052	0.015	Yes
Dryer B*	0.03	610	0.0052	0.015	Yes
Dryer C*	0.03	610	0.0052	0.015	Yes

\*Exhaust flow rates for dryers represent combustion exhaust only.

## **Emission Calculations**

The detailed emission estimates are shown in the following sections. Toxic air pollutants (TAPs) are also included in this section.

## CRITERIA POLLUTANTS

## Boiler No. 1 - Oil 1.75% Sulfur

### Boiler No. 1 - Residual Oil (1.75% Sulfur)

Criteria Pollutant Estimates, >100 MMBTU/hr (AP-42, Tables 1.3-1, 1.3-2, and 1.3-3, 9/98)

	Pollutant				
	SO <sub>2</sub>	NO <sub>x</sub>	CO	PM/PM-10 <sup>a</sup>	VOC <sup>b</sup>
Emission Factor, lb/1,000 gal	157 S <sup>c</sup>	47	5	20.8025	1.28
				15.58	
% S in fuel: 1.75					
Scrubber Efficiency 90% 25%					
Maximum <sup>d</sup> gal/day 24,984					
Maximum gal/yr 9,119,160					
Emissions, lb/hr No control	286.01	48.93	5.21	21.66	1.33
Emissions, lb/hr With Scrubber <sup>e</sup>	28.60			12.16	
Emissions, lb/day No control	6,864	1,174.2	124.92	519.73	31.98
Emissions, lb/day With Scrubber <sup>f</sup>	686.44			291.94	
Emissions, ton/yr No control	1,253	214	22.80	94.9	5.84
Emissions, ton/yr With Scrubber	125			53.3	
NSPS Subpart Db Requirement	90% reduction	0.4 lb/MMBTU <sup>g</sup>	NA	0.1 lb/MMBTU	NA
NSPS Subpart Db Requirement Met?	YES	YES	NA	YES	NA

Notes:

<sup>a</sup>Top PM emission factor is based on AP-42 for the purpose of establishing PTE totals  
Bottom # is based on November 3-4, 2006 source test results for NSPS compliance determinations

<sup>b</sup>VOC assumed to be equal to TOC. Boiler size = industrial >100 MMBTU/hr

<sup>c</sup>S = weight % sulfur in fuel

<sup>d</sup>Boiler rated at 150 MMBtu/hr; Heat content of residual oil fuel = 18,000 Btu/lb;

<sup>e</sup>Scrubber efficiency for PM removal is 8 percent

<sup>f</sup>Scrubber efficiency for SO<sub>2</sub> removal is 90 percent

<sup>g</sup>NSPS NO<sub>x</sub> standard based on boiler having high heat release rate

All calculations based on 8760 hours of operation each year



## Boiler No. 1 - Residual Oil (1.6% Sulfur)

Criteria Pollutant Estimates, >100 MMBTU/hr (AP-42, Tables 1.3-1, 1.3-2, and 1.3-3, 9/98)

	Pollutant				
	SO <sub>2</sub>	NO <sub>x</sub>	CO	PM/PM-10 <sup>a</sup>	VOC <sup>b</sup>
Emission Factor, lb/1,000 gal	157 S <sup>c</sup>	47	5	19.424 15.58	1.28
% S in fuel: 1.60					
Scrubber Efficiency 90% 25%					
Maximum <sup>d</sup> gal/day 24,984					
Maximum gal/yr 9,119,160					
Emissions, lb/hr No control	261.50	48.93	5.21	20.22	1.33
Emissions, lb/hr With Scrubber <sup>e</sup>	26.15			12.16	
Emissions, lb/day No control	6,276	1,174.25	124.92	485.29	31.98
Emissions, lb/day With Scrubber <sup>f</sup>	627.60			291.94	
Emissions, ton/yr No control	1,145	214	22.80	88.6	5.84
Emissions, ton/yr With Scrubber	115			53.3	
NSPS Subpart Db Requirement	90% reduction	0.4 lb/MMBTU <sup>g</sup>	NA	0.1 lb/MMBTU	NA
NSPS Subpart Db Requirement Met?	YES	YES	NA	YES	NA

**Notes:**

<sup>a</sup>Top PM emission factor is based on AP-42 for the purpose of establishing PTE totals

Bottom # is based on November 3-4, 2006 source test results for NSPS compliance determinations

<sup>b</sup>VOC assumed to be equal to TOC. Boiler size = industrial >100 MMBTU/hr

<sup>c</sup>S = weight % sulfur in fuel

<sup>d</sup>Boiler rated at 150 MMBtu/hr; Heat content of residual oil fuel = 18,000 Btu/lb;

<sup>e</sup>Scrubber efficiency for PM removal is 8 percent

<sup>f</sup>Scrubber efficiency for SO<sub>2</sub> removal is 90 percent

<sup>g</sup>NSPS NO<sub>x</sub> standard based on boiler having high heat release rate

All calculations based on 8760 hours of operation each year

## Boiler Propane

Criteria Pollutant Estimates, >100 MMBTU/hr (AP-42, Tables 1.5-1, 10/96)

	Pollutant				
	SO <sub>2</sub>	NO <sub>x</sub>	CO	PM <sup>a</sup>	VOC <sup>b</sup>
Emission Factor, lb/1,000 gal	0.10 S <sup>c</sup>	19	3.2	0.6	0.5
S = 15					
Scrubber Efficiency 90% 25%					
Maximum <sup>d</sup> gal/day 38,304					
Maximum gal/yr 13,980,960					
Emissions, lb/hr No control	2.39	30.32	5.11	0.96	0.80
Emissions, lb/hr With Scrubber <sup>e</sup>	0.24			0.72	
Emissions, lb/day No control	57.46	727.78	122.57	22.98	19.15
Emissions, lb/day With Scrubber <sup>f</sup>	5.75			17.24	
Emissions, ton/yr No control	10.49	132.8	22.4	4.2	3.50
Emissions, ton/yr With Scrubber	1.049			3.1	
NSPS Subpart Db Requirement	90% reduction	NA	NA	0.1 lb/MMBTU	NA
NSPS Subpart Db Requirement Met?	YES	NA	NA	YES	NA

Notes:

<sup>a</sup>PM factor is sum of filterable PM plus condensable PM.

<sup>b</sup>VOC assumed to be equal to TOC. Boiler size = industrial >100 MMBTU/hr

<sup>c</sup>S = sulfur fuel content in grains/100 ft<sup>3</sup>, assumed to be 15 (Reference: *Gas Processors Association Engineering Data Book, Standard for Commercial Grade Propane*)

<sup>d</sup>Boiler rated at 150 MMBtu/hr; Heat content of propane fuel = 94,000 Btu/gal;

<sup>e</sup>Scrubber efficiency for PM removal is 8 percent

<sup>f</sup>Scrubber efficiency for SO<sub>2</sub> removal is 90 percent

All calculations based on 8760 hours of operation each year

## Boiler No. 2 - Natural Gas

Criteria Pollutant Estimates, <100 MMBTU/hr (AP-42, Tables 1.4-1 and 1.4-2, 9/98)

	Pollutant				
	SO <sub>2</sub>	NO <sub>x</sub>	CO	PM/PM-10 <sup>a</sup>	VOC
Emission Factor, lb/10 <sup>6</sup> scf	0.6	100	84	7.6	5.5
Maximum <sup>b</sup> scf/hr 6,381					
Maximum hrs/yr 8,760					
Emissions, lb/hr No control	0.0038	0.64	0.54	0.05	0.04
Emissions, ton/yr No control	0.017	2.79	2.35	0.21	0.15

Notes:

<sup>a</sup>PM factor is sum of filterable PM plus condensable PM.

<sup>b</sup>Boiler capacity is 6.7 MMBTU/hr, Heat content of natural gas = 1050 BTU/scf;

## Cyclone

### Process Emissions

**Emission Factor: AP-42 Table 9.9.1-2, Flaker Cyclone**

PM Emission Factor lb/ton	PM-10 EF, lb/ton <sup>a</sup>	Product, lb/hr	Product, tpy <sup>b</sup>	PM, lb/hr	PM, tpy <sup>d</sup>	PM-10, lb/hr	PM-10, tpy
0.15	0.08	1,750	7,665	0.13	0.57	0.07	0.29

<sup>a</sup>PM-10 can be estimated as 50% of PM per AP-42 Table 9.9.1-2, footnote g

<sup>b</sup>Based on 8,760 hours of operation per year

## Drum Dryers

PM Emission Factor is Based on April 7, 2005 Letter from DEQ to BLF

Main Stack	PM Emission Factor lb/ton	PM-10 Emission Factor lb/ton <sup>a</sup>	Product Throughput Rate lb/hr	Product Throughput Rate tpy <sup>b</sup>	PM, lb/hr	PM, tpy <sup>b</sup>	PM-10, lb/hr	PM-10, tpy <sup>b</sup>
Drum Dryer 1	2.60	2.60	1,500	6,570	1.95	8.54	1.95	8.54
Drum Dryer 2	2.60	2.60	1,500	6,570	1.95	8.54	1.95	8.54
Drum Dryer 3	2.60	2.60	1,500	6,570	1.95	8.54	1.95	8.54
Drum Dryer 4	2.60	2.60	1,500	6,570	1.95	8.54	1.95	8.54
Drum Dryer 5	2.60	2.60	1,500	6,570	1.95	8.54	1.95	8.54
Drum Dryer 6	2.60	2.60	1,500	6,570	1.95	8.54	1.95	8.54
Drum Dryer 7	2.60	2.60	1,500	6,570	1.95	8.54	1.95	8.54
Drum Dryer 8	2.60	2.60	1,500	6,570	1.95	8.54	1.95	8.54
Drum Dryer 9	2.60	2.60	1,500	6,570	1.95	8.54	1.95	8.54
Drum Dryer 10	2.60	2.60	1,500	6,570	1.95	8.54	1.95	8.54
Drum Dryer 11	2.60	2.60	1,500	6,570	1.95	8.54	1.95	8.54
Drum Dryer 12	2.60	2.60	1,500	6,570	1.95	8.54	1.95	8.54
<b>Total drums 1-12:</b>			<b>18,000</b>	<b>78,840</b>	<b>23.40</b>	<b>102.49</b>	<b>23.40</b>	<b>102.49</b>

<sup>a</sup>PM-10 emission factor assumed to be equal to PM emission factor per December 23, 2004 Source Test Report.

<sup>b</sup>Annual production = **8,760** hours per year.

## National Dryer Process Emissions

PM Emission Factor is Based on April 7, 2005 Letter from DEQ to BLF

	Uncontrolled PM/PM-10 Emission Factor lb/ton <sup>a</sup>	Product Throughput Rate lb/hr	Product Throughput Rate tpy <sup>b</sup>	PM/PM-10 Emission Rate lb/hr	PM/PM-10 Emission Rate tpy <sup>b</sup>
National Dryer A1	2.28	375	1,643	0.43	1.87
National Dryer A2	2.28	375	1,643	0.43	1.87
National Dryer B	2.28	375	1,643	0.43	1.87
National Dryer C	2.28	375	1,643	0.43	1.87
<b>Total</b>		<b>1500</b>	<b>6,570</b>	<b>1.71</b>	<b>7.49</b>

<sup>a</sup>PM-10 emission factor assumed to be equal to PM emission factor per December 23, 2004 Source Test Report.

<sup>b</sup>Annual production = **8,760** hours per year.

## Fluidized Bed Dryer

Criteria Pollutant Estimates for Fuel Combustion, <100 MMBTU/hr (Source: AP-42, Tables 1.4-1, 1.4-2, 9/98 edition and 1.5-1, 10/96 edition)

Natural Gas				Propane			
Pollutant				Pollutant			
	SO <sub>2</sub>	NO <sub>x</sub>	CO	PM/PM-10	VOC		
Emission Factor, lb/10 <sup>6</sup> scf	0.6	100	84	7.6	5.5		
Maximum MMBTU/hr							
4.50E-03							
Maximum hrs/yr							
8,760							
Emissions, lb/hr							
No control	0.003	0.45	0.38	0.03	0.02		
Emissions, ton/yr							
No control	0.012	1.97	1.66	0.15	0.11		

Propane				Propane			
Pollutant				Pollutant			
	SO <sub>2</sub> <sup>a</sup>	NO <sub>x</sub>	CO	PM/PM-10	VOC <sup>b</sup>		
Emission Factor, lb/1,000 gal	0.10	S <sup>b</sup>	14	1.9	0.4	0.5	
S =							
15							
Maximum gal/hr							
48.00							
Maximum hrs/yr							
8,760							
Emissions, lb/hr							
No control	0.07	0.67	0.09	0.02	0.02		
Emissions, ton/yr							
No control	0.32	2.94	0.40	0.08	0.11		

### Process Emissions

PM Emission Factor is Based on April 7, 2005 Letter from DEQ to BLF

PM Emission Factor lb/ton	PM-10 EF, lb/ton <sup>c</sup>	Product, lb/hr	Product, tpy	PM, lb/hr	PM, tpy <sup>d</sup>	PM-10, lb/hr	PM-10, tpy
3.50	3.50	2,000	8,760	3.50	15.33	3.50	15.33

### Total Maximum Emissions (Combustion + Process Emissions):

PM, lb/hr	PM, ton/yr	PM-10, lb/hr	PM-10, ton/yr	SO <sub>2</sub> , lb/hr	SO <sub>2</sub> , ton/yr	CO, lb/hr	CO, ton/yr	NO <sub>x</sub> , lb/hr	NO <sub>x</sub> , ton/yr	VOC, lb/hr	VOC, ton/yr
3.53	15.48	3.53	15.48	0.07	0.32	0.38	1.66	0.67	2.94	0.02	0.11

Fuel combustion assumed to run 24 hr/day

FBD size = 4.5 MMBTU/hr

<sup>a</sup>S = sulfur fuel content in grains/100 ft<sup>3</sup>, assumed to be 15 (per the Gas Processors Association Engineering Data Book, standard for commercial grade propane).

<sup>b</sup>VOC assumed to be equal to TOC.

<sup>c</sup>PM-10 emission factor assumed to be equal to PM emission factor per December 23, 2004 Source Test Report.

<sup>d</sup>Annual production = **8,760** hours per year.

## SO<sub>2</sub> EMISSIONS FROM SULFITE IN DRYING PROCESS

Source	Fraction of Product Having Sulfite (lb Sulfite Product/lb Product)	Concentration (lb Sulfite/lb Sulfite Product) <sup>a</sup>	Fraction of Sulfite Converted to SO <sub>2</sub> (lb SO <sub>2</sub> /lb Sulfite) <sup>b</sup>	Throughput (lb Product/hr)	SO <sub>2</sub> Emissions (lb/hr)	SO <sub>2</sub> Emissions (t/yr)
Drum Dryer 1	0.12	0.0006	0.10	1500	0.011	0.047
Drum Dryer 2	0.12	0.0006	0.10	1500	0.011	0.047
Drum Dryer 3	0.12	0.0006	0.10	1500	0.011	0.047
Drum Dryer 4	0.12	0.0006	0.10	1500	0.011	0.047
Drum Dryer 5	0.12	0.0006	0.10	1500	0.011	0.047
Drum Dryer 6	0.12	0.0006	0.10	1500	0.011	0.047
Drum Dryer 7	0.12	0.0006	0.10	1500	0.011	0.047
Drum Dryer 8	0.12	0.0006	0.10	1500	0.011	0.047
Drum Dryer 9	0.12	0.0006	0.10	1500	0.011	0.047
Drum Dryer 10	0.12	0.0006	0.10	1500	0.011	0.047
Drum Dryer 11	0.12	0.0006	0.10	1500	0.011	0.047
Drum Dryer 12	0.12	0.0006	0.10	1500	0.011	0.047
National Dryer A1	0.90	0.0006	0.10	375	0.020	0.089
National Dryer A2	0.90	0.0006	0.10	375	0.020	0.089
National Dryer B	0.90	0.0006	0.10	375	0.020	0.089
National Dryer C	0.90	0.0006	0.10	375	0.020	0.089
Fluidized Bed Dryer	0.12	0.0006	0.10	2000	0.014	0.063
				<b>TOTAL =</b>	<b>0.23</b>	<b>0.99</b>

<sup>a</sup>Worst-case scenario. Concentration varies between 0.0002 and 0.0006 lb Sulfite/lb Sulfite Product.

<sup>b</sup>From Basic American Foods Tier II Operating Permit Application - Table C-6.



## Flake Packaging

PM Emission Factor is Based on April 7, 2005 Letter from DEQ to BLF

	Controlled PM Emission Factor lb/ton	Controlled PM- 10 Emission Factor lb/ton	Product Throughput Rate lb/hr	Product Throughput Rate tpy <sup>b</sup>	PM Emission Rate lb/hr	PM Emission Rate tpy <sup>b</sup>	PM-10 Emission Rate lb/hr	PM-10 Emission Rate tpy <sup>b</sup>
Flake Packaging Bulk Line	0.020	0.02000	12,000	52,560	0.120	0.53	0.120	0.53
Flake Packaging Line	0.020	0.02000	8,000	35,040	0.080	0.35	0.080	0.35
Flake Packaging Torit Line	0.020	0.02000	8,000	35,040	0.080	0.35	0.080	0.35
Flake Packaging Drum Negative Air Baghouse	0.020	0.02000	18,000	78,840	0.180	0.79	0.180	0.79
<b>Total</b>					<b>0.46</b>	<b>2.01</b>	<b>0.46</b>	<b>2.01</b>

<sup>a</sup>PM-10 emission factor assumed to be equal to PM emission factor per December 23, 2004 Source Test Report.

<sup>b</sup>Annual production = **8760** hours per year

# NATIONAL DRYERS

Criteria Pollutant Estimates, AP-42, Tables 1.5-1, 10/96

Criteria Pollutant Estimates, AP-42, Tables 1.4-1 and 1.4-2, 9/98

## Stage A1

### Propane

	Pollutant				
	SO <sub>2</sub>	NO <sub>x</sub>	CO	PM	VOC <sup>a</sup>
Emission Factor, lb/1,000 gal	0.1	S <sup>b</sup>	14	1.9	0.4
S = 15					0.5
Maximum gal/hr					
39					
Maximum hrs/yr					
8,760					
Emissions, lb/hr					
No control	0.06	0.55	0.07	0.02	0.02
Emissions, ton/yr					
No control	0.26	2.39	0.32	0.07	0.09

### Natural Gas

	Pollutant				
	SO <sub>2</sub>	NO <sub>x</sub>	CO	PM/PM-10	VOC
Emission Factor, lb/10 <sup>6</sup> scf	0.6	100	84	7.6	5.5
Maximum MMscf/hr					
3.60E-03					
Maximum hrs/yr					
8,760					
Emissions, lb/hr					
No control	0.002	0.36	0.30	0.03	0.02
Emissions, ton/yr					
No control	0.009	1.58	1.32	0.12	0.09

# NATIONAL DRYERS

Criteria Pollutant Estimates, AP-42, Tables 1.5-1, 10/96

Criteria Pollutant Estimates, AP-42, Tables 1.4-1 and 1.4-2, 9/98

## Stage A2

### Propane

	Pollutant				
	SO <sub>2</sub>	NO <sub>x</sub>	CO	PM	VOC <sup>a</sup>
Emission Factor, lb/1,000 gal	0.1	14	1.9	0.4	0.5
S = 15					
Maximum gal/hr 39					
Maximum hrs/yr 8,760					
Emissions, lb/hr					
No control	0.06	0.55	0.07	0.02	0.02
Emissions, ton/yr					
No control	0.26	2.39	0.32	0.07	0.09

### Natural Gas

	Pollutant				
	SO <sub>2</sub>	NO <sub>x</sub>	CO	PM/PM-10	VOC
Emission Factor, lb/10 <sup>6</sup> scf	0.6	100	84	7.6	5.5
Maximum MMscf/hr 3.60E-03					
Maximum hrs/yr 8,760					
Emissions, lb/hr					
No control	0.002	0.36	0.30	0.03	0.02
Emissions, ton/yr					
No control	0.009	1.58	1.32	0.12	0.09

# NATIONAL DRYERS

Criteria Pollutant Estimates, AP-42, Tables 1.5-1, 10/96

Criteria Pollutant Estimates, AP-42, Tables 1.4-1 and 1.4-2, 9/98

## Stage B

### Propane

	Pollutant				
	SO <sub>2</sub>	NO <sub>x</sub>	CO	PM	VOC <sup>a</sup>
Emission Factor, lb/1,000 gal	0.1	14	1.9	0.4	0.5
S = 15					
Maximum gal/hr 39					
Maximum hrs/yr 8,760					
Emissions, lb/hr No control	0.06	0.55	0.07	0.02	0.02
Emissions, ton/yr No control	0.26	2.39	0.32	0.07	0.09

### Natural Gas

	Pollutant				
	SO <sub>2</sub>	NO <sub>x</sub>	CO	PM/PM-10	VOC
Emission Factor, lb/10 <sup>6</sup> scf	0.6	100	84	7.6	5.5
Maximum MMscf/hr 3.60E-03					
Maximum hrs/yr 8,760					
Emissions, lb/hr No control	0.002	0.36	0.30	0.03	0.02
Emissions, ton/yr No control	0.009	1.58	1.32	0.12	0.09



# SPACE HEATERS

Criteria Pollutant Estimates, AP-42, Tables 1.5-1, 10/96

Criteria Pollutant Estimates, AP-42, Tables 1.4-1 and 1.4-2, 9/98

## Propane Heaters 1, 2 and 3

		Propane				Natural Gas			
		Pollutant		Pollutant		Pollutant		Pollutant	
		SO <sub>2</sub>	NO <sub>x</sub>	CO	PM	VOC <sup>a</sup>	SO <sub>2</sub>	NO <sub>x</sub>	CO
Emission Factor, lb/1,000 gal	0.1 S <sup>b</sup>		14	1.9	0.4	0.5			
S =	15								
Maximum gal/hr	39								
Maximum hrs/yr	8,760								
Emissions, lb/hr	0.06		0.55	0.07	0.02	0.02			
No control									
Emissions, ton/yr	0.26		2.39	0.32	0.07	0.09			
No control									

<sup>a</sup>VOC assumed to be equal to TOC.

<sup>b</sup>S = sulfur fuel content in grains/100 ft<sup>3</sup>, assumed to be 15 (per the Gas Processors Association Engineering Data Book, standard for commercial grade propane).

## Total Maximum Emissions:

	PM, lb/hr	PM, ton/yr	PM-10, lb/hr	PM-10, ton/yr	SO <sub>2</sub> , lb/hr	SO <sub>2</sub> , ton/yr	CO, lb/hr	CO, ton/yr	NO <sub>x</sub> , lb/hr	NO <sub>x</sub> , ton/yr	VOC, lb/hr	VOC, ton/yr
Propane Heaters	0.03	0.12	0.03	0.12	0.06	0.26	0.30	1.32	0.68	3.00	0.02	0.09

Note: Capacity = 1.2 MMBTU/propane heater

### Process Weight Calculations

Source	Process Weight, lb/hr*	E, Emission Limit, lb/hr	PM Emissions, lb/hr	Meet E?
Cyclone	1,750	3.972	0.13	Yes
Drum Dryer 1	7,500	9.512	8.54	Yes
Drum Dryer 2	7,500	9.512	8.54	Yes
Drum Dryer 3	7,500	9.512	8.54	Yes
Drum Dryer 4	7,500	9.512	8.54	Yes
Drum Dryer 5	7,500	9.512	8.54	Yes
Drum Dryer 6	7,500	9.512	8.54	Yes
Drum Dryer 7	7,500	9.512	8.54	Yes
Drum Dryer 8	7,500	9.512	8.54	Yes
Drum Dryer 9	7,500	9.512	8.54	Yes
Drum Dryer 10	7,500	9.512	8.54	Yes
Drum Dryer 11	7,500	9.512	8.54	Yes
Drum Dryer 12	7,500	9.512	8.54	Yes
Fluidized Bed Dryer	10,000	11.000	3.50	Yes
National Dryer	7,500	9.512	1.71	Yes
Flake Packaging Bulk Line	12,000	11.513	0.120	Yes
Flake Packaging Line	8,000	9.887	0.35	Yes
Flake Packaging Torit Line	8,000	9.887	0.35	Yes
Flake Packaging Drum Negative Air Baghouse	18,000	12.741	0.79	Yes

$$E = 0.045(PW)^{0.60} \quad E = \text{Emission Limit} < 9,250 \text{ lb/hr PW}$$

$$E = 1.10(PW)^{0.25} \quad E = \text{Emission Limit} \geq 9,250 \text{ lb/hr PW}$$

\*A ratio of 5:1 raw/final product was used for the dryers.

**TANKS 4.0.9d**  
**Emissions Report - Summary Format**  
**Tank Identification and Physical Characteristics**

**Identification**

User Identification: Larsen Tank 1  
City: Pocatello  
State: Idaho  
  
Company: Blaine Larsen Farms  
Type of Tank: Dehydration Division  
Horizontal Tank  
Description: 30,000 Gallon Fuel Tank

**Tank Dimensions**

Shell Length (ft): 64  
Diameter (ft): 20  
Volume (gallons): 30,000.00  
Turnovers: 211.05  
Net Throughput (gal/yr): 6,293,000.00  
Is Tank Heated (y/n): N  
  
Is Tank Underground (y/n): N

**Paint Characteristics**

Shell Color/Shade: Gray/Medium  
Shell Condition: Good

**Breather Vent Settings**

Vacuum Settings (psig): 0  
Pressure Settings (psig): 0

Meteorological Data used in Emissions Calculations: Pocatello, Idaho (Avg Atmospheric Pressure = 12.53 psia)

**TANKS 4.0.9d**  
**Emissions Report - Summary Format**  
**Liquid Contents of Storage Tank**

Larsen Tank 1 - Horizontal Tank  
Pocatello, Idaho

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol Wt	Liquid Mass Fract	Vapor Mass Fract	Mol Weight	Basis for Vapor Pressure Calculations
		Avg	Min	Max		Avg	Min	Max					
Residual oil no. 6	All	55.44	44.27	66.62	49.43	0	0	1E-04	100			303	Option 1: VP50 = .00003 VP60 = .00004

**TANKS 4.0.9d**  
**Emissions Report - Summary Format**  
**Individual Tank Emission Totals**

**Emissions Report for: Annual**

Larsen Tank 1 - Horizontal Tank  
Pocatello, Idaho

Components	Losses(lbs)		Total Emissions
	Working Loss	Breathing Loss	
Residual oil no. 6	0.31	0.49	0.81



## Emission Inventory

Emission Inventory														
Pollutant														
Source	PM (w/o scrubber control for Boiler No. 1)		PM-10		VOC		SO <sub>2</sub> (w/ scrubber control for Boiler No. 1)		NO <sub>x</sub>		CO			
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr		
Boiler No. 1	21.66	94.85	21.66	94.85	1.33	5.84	28.60	125.27	48.93	214.30	5.21	22.80		
Boiler No. 2	0.05	0.21	0.05	0.21	0.04	0.15	0.004	0.02	0.64	2.79	0.54	2.35		
Cyclone	0.13	0.57	0.07	0.29										
Drum Dryer 1	1.95	8.54	1.95	8.54			0.01	0.05						
Drum Dryer 2	1.95	8.54	1.95	8.54			0.01	0.05						
Drum Dryer 3	1.95	8.54	1.95	8.54			0.01	0.05						
Drum Dryer 4	1.95	8.54	1.95	8.54			0.01	0.05						
Drum Dryer 5	1.95	8.54	1.95	8.54			0.01	0.05						
Drum Dryer 6	1.95	8.54	1.95	8.54			0.01	0.05						
Drum Dryer 7	1.95	8.54	1.95	8.54			0.01	0.05						
Drum Dryer 8	1.95	8.54	1.95	8.54			0.01	0.05						
Drum Dryer 9	1.95	8.54	1.95	8.54			0.01	0.05						
Drum Dryer 10	1.95	8.54	1.95	8.54			0.01	0.05						
Drum Dryer 11	1.95	8.54	1.95	8.54			0.01	0.05						
Drum Dryer 12	1.95	8.54	1.95	8.54			0.01	0.05						
National Dryer														
Process Emissions	1.71	7.49	1.71	7.49			0.081	0.35						
Fluidized Bed Dryer	3.53	15.48	3.53	15.48	0.02	0.11	0.09	0.38	0.67	2.94	0.38	1.66		
Flake Packaging Bulk Line	0.120	0.53	0.120	0.53										
Flake Packaging Line														
Flake Packaging Torit Line	0.080	0.35	0.080	0.35										
Flake Packaging	0.080	0.35	0.080	0.35										
Flake Packaging Drum Negative Air														
Baghouse	0.180	0.79	0.180	0.79										
National Dryer A1	0.03	0.12	0.03	0.12	0.02	0.09	0.06	0.26	0.55	2.39	0.30	1.32		
National Dryer A2	0.03	0.12	0.03	0.12	0.02	0.09	0.06	0.26	0.55	2.39	0.30	1.32		
National Dryer B	0.03	0.12	0.03	0.12	0.02	0.09	0.06	0.26	0.55	2.39	0.30	1.32		
National Dryer C	0.03	0.12	0.03	0.12	0.02	0.09	0.06	0.26	0.55	2.39	0.30	1.32		
Propane Heaters	0.03	0.12	0.03	0.12	0.02	0.09	0.06	0.26	0.68	3.00	0.30	1.32		
Tanks						0.0012								
TOTAL	51.08	223.71	51.01	223.43	1.49	6.53	29.19	127.87	53.11	232.60	7.63	33.42		

## **TOXIC AIR POLLUTANTS (TAPs)**

# TOXIC AIR POLLUTANT CALCULATIONS

## TABLE 1. BOILER #1 - NON-CARCINOGENS

Pollutant	Emission Factor (lb/1,000 gal)	FUEL OIL		
		Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Antimony	5.25E-03	5.47E-03	2.39E-02	6.89E-04
Barium	2.57E-03	2.68E-03	1.17E-02	3.37E-04
Chromium	8.45E-04	8.80E-04	3.85E-03	1.11E-04
Cobalt	6.02E-03	6.27E-03	2.74E-02	7.90E-04
Copper	1.76E-03	1.83E-03	8.02E-03	2.31E-04
Ethylbenzene	6.36E-05	6.62E-05	2.90E-04	8.34E-06
Fluoride	3.73E-02	3.88E-02	1.70E-01	4.89E-03
Hexane	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manganese	3.00E-03	3.12E-03	1.37E-02	3.93E-04
Mercury	3*	2.88.E-04	1.26.E-03	3.63.E-05
Moybdenum	7.87E-04	8.19E-04	3.59E-03	1.03E-04
Naphthalene	1.13E-03	1.18E-03	5.15E-03	1.48E-04
Pentane	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phosphorous	9.46E-03	9.85E-03	4.31E-02	1.24E-03
Selenium	15*	1.44E-03	6.31E-03	1.81E-04
1,1,1-Trichloroethane	2.4E-04	2.46E-04	1.08E-03	3.10E-05
Toluene	6.20E-03	6.45E-03	2.83E-02	8.13E-04
o-Xylene	1.09E-04	1.13E-04	4.97E-04	1.43E-05
Vanadium	3.18E-02	3.31E-02	1.45E-01	4.17E-03
Zinc	2.91E-02	3.03E-02	1.33E-01	3.82E-03

## TABLE 2. BOILER #1 - CARCINOGENS

Pollutant	Emission Factor (lb/1,000 gal)	FUEL OIL		
		Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Arsenic	1.32E-03	1.37E-03	6.02E-03	1.73E-04
Benzene	2.14E-04	2.23E-04	9.76E-04	2.81E-05
Beryllium	3*	2.88.E-04	1E-03	4.E-05
Cadmium	3*	2.88.E-04	1.26E-03	4.E-05
Chromium VI	2.48E-04	2.58E-04	1.13E-03	3.25E-05
Formaldehyde	3.30E-02	3.44E-02	2E-01	4.33E-03
Nickel	1.67E-06	1.74E-06	7.61E-06	2.19E-07
Benzo(a)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benz(a)anthracene	4.01E-06	4.17E-06	2E-05	5.26E-07
Benzo(b,k)fluoranthene	1.48E-06	1.54E-06	6.75E-06	1.94E-07
Chrysene	2.38E-06	2.48E-06	1.09E-05	3.12E-07
Dibenzo(a,h)anthracene	1.67E-06	1.74E-06	8E-06	2.19E-07
Indeno(1,2,3-cd)pyrene	2.14E-06	2.23E-06	9.76E-06	2.81E-07
Total PAHs	1.17E-05	1.22E-05	5.33E-05	1.53E-06

Notes: \* Emission factor units in pounds per 1,000,000 MMBTU.

Emission estimates represent maximum emissions based on burning #2, #4, #5, or #6 fuel oil, and based on AP-42 Tables 1.3-9, 1.3-10, and 1.3-11 (except nickel).

Nickel estimates based on maximum fuel oil nickel concentration from fuel supplier.

Emissions based on boiler operating with maximum fuel usage of 641 gal/hour.

Emissions based on 8,760 hours/year of operation.

**TOXIC AIR POLLUTANT CALCULATIONS**  
**TABLE 3. BOILER #2 - NON-CARCINOGENS**  
**NATURAL GAS**

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Antimony	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Barium	4.4E-03	2.8E-05	1.2E-04	3.5E-06
Chromium	1.4E-03	8.9E-06	3.9E-05	1.1E-06
Cobalt	8.4E-05	5.4E-07	2.3E-06	6.8E-08
Copper	8.5E-04	5.4E-06	2.4E-05	6.8E-07
Ethylbenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Fluoride	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	1.8E+00	1.1E-02	5.0E-02	1.4E-03
Manganese	3.8E-04	2.4E-06	1.1E-05	3.1E-07
Mercury	2.6E-04	1.7E-06	7.3E-06	2.1E-07
Molybdenum	1.1E-03	7.0E-06	3.1E-05	8.8E-07
Naphthalene	6.1E-04	3.9E-06	1.7E-05	4.9E-07
Pentane	2.6E+00	1.7E-02	7.3E-02	2.1E-03
Phosphorous	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Selenium	2.4E-05	1.5E-07	6.7E-07	1.9E-08
Toluene	3.4E-03	2.2E-05	9.5E-05	2.7E-06
o-Xylene	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Vanadium	2.3E-03	1.5E-05	6.4E-05	1.8E-06
Zinc	2.9E-02	1.9E-04	8.1E-04	2.3E-05

**TABLE 4. BOILER #2 - CARCINOGENS**  
**NATURAL GAS**

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Arsenic	2.0E-04	1.3E-06	5.6E-06	1.6E-07
Benzene	2.1E-03	1.3E-05	5.9E-05	1.7E-06
Beryllium	1.2E-05	7.7E-08	3.4E-07	9.6E-09
Cadmium	1.1E-03	7.0E-06	3.1E-05	8.8E-07
Chromium VI	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	7.5E-02	4.8E-04	2.1E-03	6.0E-05
Nickel	2.1E-03	1.3E-05	5.9E-05	1.7E-06
Benzo(a)pyrene	1.2E-06	7.7E-09	3.4E-08	9.6E-10
Benz(a)anthracene	1.8E-06	1.1E-08	5.0E-08	1.4E-09
Benzo(b)fluoranthene	1.8E-06	1.1E-08	5.0E-08	1.4E-09
Benzo(k)fluoranthene	1.8E-06	1.1E-08	5.0E-08	1.4E-09
Chrysene	1.8E-06	1.1E-08	5.0E-08	1.4E-09
Dibenzo(a,h)anthracene	1.2E-06	7.7E-09	3.4E-08	9.6E-10
Indeno(1,2,3-cd)pyrene	1.8E-06	1.1E-08	5.0E-08	1.4E-09
Total PAHs	1.1E-05	7.3E-08	3.2E-07	9.2E-09

Notes: Emissions based on boiler operating at maximum rate of 6.7 MMBTU/hr.  
Assumed 1,050 BTU/scf heat content of natural gas.  
Emissions based on 8,760 hours/year of operation.

Source: AP-42 Tables 1.4-3 and 1.4-4, 7/98.

Note: For small natural gas boiler

## TOXIC AIR POLLUTANTS CALCULATIONS

**TABLE 1. FLUIDIZED BED DRYER - NON-CARCINOGENS**  
**NATURAL GAS**

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Antimony	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Barium	4.4E-03	2.0E-05	8.7E-05	2.5E-06
Chromium	1.4E-03	6.3E-06	2.8E-05	7.9E-07
Cobalt	8.4E-05	3.8E-07	1.7E-06	4.8E-08
Copper	8.5E-04	3.8E-06	1.7E-05	4.8E-07
Ethylbenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Fluoride	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	1.8E+00	8.1E-03	3.5E-02	1.0E-03
Manganese	3.8E-04	1.7E-06	7.5E-06	2.2E-07
Mercury	2.6E-04	1.2E-06	5.1E-06	1.5E-07
Molybdenum	1.1E-03	5.0E-06	2.2E-05	6.2E-07
Naphthalene	6.1E-04	2.7E-06	1.2E-05	3.5E-07
Pentane	2.6E+00	1.2E-02	5.1E-02	1.5E-03
Phosphorous	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Selenium	2.4E-05	1.1E-07	4.7E-07	1.4E-08
1,1,1-Trichloroethane	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	3.4E-03	1.5E-05	6.7E-05	1.9E-06
o-Xylene	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Vanadium	2.3E-03	1.0E-05	4.5E-05	1.3E-06
Zinc	2.9E-02	1.3E-04	5.7E-04	1.6E-05

**TABLE 2. FLUIDIZED BED DRYER - CARCINOGENS**  
**NATURAL GAS**

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions (lb/hr)	Emissions (tons/yr)	Emissions (grams/sec)
Arsenic	2.00E-04	9.0E-07	3.9E-06	1.1E-07
Benzene	2.1E-03	9.5E-06	4.1E-05	1.2E-06
Beryllium	1.20E-05	5.4E-08	2.4E-07	6.8E-09
Cadmium	1.10E-03	5.0E-06	2.2E-05	6.2E-07
Chromium VI	0.00E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	7.5E-02	3.4E-04	1.5E-03	4.3E-05
Nickel	2.1E-03	9.5E-06	4.1E-05	1.2E-06
Benzo(a)pyrene	1.2E-06	5.4E-09	2.4E-08	6.8E-10
Benz(a)anthracene	1.8E-06	8.1E-09	3.5E-08	1.0E-09
Benzo(b)fluoranthene	1.8E-06	8.1E-09	3.5E-08	1.0E-09
Benzo(k)fluoranthene	1.8E-06	8.1E-09	3.5E-08	1.0E-09
Chrysene	1.8E-06	8.1E-09	3.5E-08	1.0E-09
Dibenzo(a,h)anthracene	1.2E-06	5.4E-09	2.4E-08	6.8E-10
Indeno(1,2,3-cd)pyrene	1.8E-06	8.1E-09	3.5E-08	1.0E-09
Total PAHs	1.1E-05	5.1E-08	2.2E-07	6.5E-09

Source: AP-42 Tables 1.4-3 and 1.4-4, 7/98.

Notes: Emissions based on operating at maximum rate of 4,500 cu. ft./hr.  
Emissions based on 8,760 hours/year of operation.

TOXIC AIR POLLUTANT CALCULATIONS

TABLE 1. DRYERS A, B, & C - NON-CARCINOGENS  
NATURAL GAS

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions Dryer A1 (lb/hr)	Emissions Dryer A2 (lb/hr)	Emissions Dryer B (lb/hr)	Emissions Dryer C (lb/hr)	Emissions Dryer A1 tpy	Emissions Dryer A2 tpy	Emissions Dryer B tpy	Emissions Dryer C tpy	Dryer A1 Emissions (grams/sec)	Dryer A2 Emissions (grams/sec)	Dryer B Emissions (grams/sec)	Dryer C Emissions (grams/sec)
Arsimony	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Barium	4.4E-03	1.8E-05	1.8E-05	1.8E-05	1.8E-05	6.9E-05	6.9E-05	6.9E-05	6.9E-05	2.0E-06	2.0E-06	2.0E-06	2.0E-06
Chromium	1.4E-03	5.0E-06	5.0E-06	5.0E-06	5.0E-06	2.2E-05	2.2E-05	2.2E-05	2.2E-05	6.4E-07	6.4E-07	6.4E-07	6.4E-07
Cobalt	8.4E-05	3.0E-07	3.0E-07	3.0E-07	3.0E-07	1.3E-06	1.3E-06	1.3E-06	1.3E-06	3.8E-08	3.8E-08	3.8E-08	3.8E-08
Copper	8.5E-04	3.1E-06	3.1E-06	3.1E-06	3.1E-06	1.3E-05	1.3E-05	1.3E-05	1.3E-05	3.9E-07	3.9E-07	3.9E-07	3.9E-07
Ethylbenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Fluoride	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	1.8E+00	6.9E-03	6.9E-03	6.9E-03	6.9E-03	2.8E-02	2.8E-02	2.8E-02	2.8E-02	8.2E-04	8.2E-04	8.2E-04	8.2E-04
Manganese	3.8E-04	1.4E-06	1.4E-06	1.4E-06	1.4E-06	6.0E-06	6.0E-06	6.0E-06	6.0E-06	1.7E-07	1.7E-07	1.7E-07	1.7E-07
Mercury	2.6E-04	9.4E-07	9.4E-07	9.4E-07	9.4E-07	4.1E-06	4.1E-06	4.1E-06	4.1E-06	1.2E-07	1.2E-07	1.2E-07	1.2E-07
Molybdenum	1.1E-03	4.0E-06	4.0E-06	4.0E-06	4.0E-06	1.7E-05	1.7E-05	1.7E-05	1.7E-05	5.0E-07	5.0E-07	5.0E-07	5.0E-07
Naphthalene	6.1E-04	2.2E-06	2.2E-06	2.2E-06	2.2E-06	9.6E-06	9.6E-06	9.6E-06	9.6E-06	2.8E-07	2.8E-07	2.8E-07	2.8E-07
Pentane	2.6E+00	9.4E-03	9.4E-03	9.4E-03	9.4E-03	4.1E-02	4.1E-02	4.1E-02	4.1E-02	1.2E-03	1.2E-03	1.2E-03	1.2E-03
Phosphorus	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Selenium	2.4E-05	8.8E-08	8.8E-08	8.8E-08	8.8E-08	3.8E-07	3.8E-07	3.8E-07	3.8E-07	1.1E-08	1.1E-08	1.1E-08	1.1E-08
1,1,1-Trichloroethane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	3.4E-03	1.2E-05	1.2E-05	1.2E-05	1.2E-05	5.4E-05	5.4E-05	5.4E-05	5.4E-05	1.5E-06	1.5E-06	1.5E-06	1.5E-06
o-Xylene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Vanadium	2.3E-03	8.3E-06	8.3E-06	8.3E-06	8.3E-06	3.6E-05	3.6E-05	3.6E-05	3.6E-05	1.0E-06	1.0E-06	1.0E-06	1.0E-06
Zinc	2.9E-02	1.0E-04	1.0E-04	1.0E-04	1.0E-04	4.6E-04	4.6E-04	4.6E-04	4.6E-04	1.3E-05	1.3E-05	1.3E-05	1.3E-05

TABLE 2. DRYERS A, B, & C - CARCINOGENS  
NATURAL GAS

Pollutant	Emission Factor (lb/1,000,000 scf)	Emissions Dryer A1 (lb/hr)	Emissions Dryer A2 (lb/hr)	Emissions Dryer B (lb/hr)	Emissions Dryer C (lb/hr)	Emissions Dryer A1 tpy	Emissions Dryer A2 tpy	Emissions Dryer B tpy	Emissions Dryer C tpy	Dryer A1 Emissions (grams/sec)	Dryer A2 Emissions (grams/sec)	Dryer B Emissions (grams/sec)	Dryer C Emissions (grams/sec)
Arsenic	2.0E-04	7.2E-07	7.2E-07	7.2E-07	7.2E-07	3.2E-06	3.2E-06	3.2E-06	3.2E-06	9.1E-08	9.1E-08	9.1E-08	9.1E-08
Benzene	2.1E-03	7.8E-06	7.8E-06	7.8E-06	7.8E-06	3.3E-05	3.3E-05	3.3E-05	3.3E-05	9.5E-07	9.5E-07	9.5E-07	9.5E-07
Beryllium	1.2E-05	4.3E-08	4.3E-08	4.3E-08	4.3E-08	1.9E-07	1.9E-07	1.9E-07	1.9E-07	5.4E-09	5.4E-09	5.4E-09	5.4E-09
Cadmium	1.1E-03	4.0E-06	4.0E-06	4.0E-06	4.0E-06	1.7E-05	1.7E-05	1.7E-05	1.7E-05	5.0E-07	5.0E-07	5.0E-07	5.0E-07
Chromium VI	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	7.5E-02	2.7E-04	2.7E-04	2.7E-04	2.7E-04	1.2E-03	1.2E-03	1.2E-03	1.2E-03	3.4E-05	3.4E-05	3.4E-05	3.4E-05
Nickel	2.1E-03	7.6E-06	7.6E-06	7.6E-06	7.6E-06	3.3E-05	3.3E-05	3.3E-05	3.3E-05	9.5E-07	9.5E-07	9.5E-07	9.5E-07
Benz(a)pyrene	1.2E-06	4.3E-09	4.3E-09	4.3E-09	4.3E-09	1.9E-08	1.9E-08	1.9E-08	1.9E-08	5.4E-10	5.4E-10	5.4E-10	5.4E-10
Benz(a)anthracene	1.8E-06	6.5E-09	6.5E-09	6.5E-09	6.5E-09	2.8E-08	2.8E-08	2.8E-08	2.8E-08	8.2E-10	8.2E-10	8.2E-10	8.2E-10
Benz(b)fluoranthene	1.8E-06	6.5E-09	6.5E-09	6.5E-09	6.5E-09	2.8E-08	2.8E-08	2.8E-08	2.8E-08	8.2E-10	8.2E-10	8.2E-10	8.2E-10
Benz(k)fluoranthene	1.8E-06	6.5E-09	6.5E-09	6.5E-09	6.5E-09	2.8E-08	2.8E-08	2.8E-08	2.8E-08	8.2E-10	8.2E-10	8.2E-10	8.2E-10
Chrysene	1.8E-06	6.5E-09	6.5E-09	6.5E-09	6.5E-09	2.8E-08	2.8E-08	2.8E-08	2.8E-08	8.2E-10	8.2E-10	8.2E-10	8.2E-10
Dibenz(a,h)anthracene	1.2E-06	4.3E-09	4.3E-09	4.3E-09	4.3E-09	1.9E-08	1.9E-08	1.9E-08	1.9E-08	5.4E-10	5.4E-10	5.4E-10	5.4E-10
Indeno(1,2,3-cd)pyrene	1.8E-06	6.5E-09	6.5E-09	6.5E-09	6.5E-09	2.8E-08	2.8E-08	2.8E-08	2.8E-08	8.2E-10	8.2E-10	8.2E-10	8.2E-10
Total PAHs	1.1E-05	4.1E-08	4.1E-08	4.1E-08	4.1E-08	1.8E-07	1.8E-07	1.8E-07	1.8E-07	5.2E-09	5.2E-09	5.2E-09	5.2E-09

Notes: Emissions based on each dryer operating at 3,600 cu. ft./hr.  
Emissions based on 8,760 hours/year of operation for each dryer.

Source: AP-42 Tables 1.4-3 and 1.4-4, 7/98.

# TOXIC AIR POLLUTANT CALCULATIONS

## TABLE 1. PROPANE HEATERS -- NON-CARCINOGENS

Pollutant	Emission Factor (lb/1,000,000 scf)	NATURAL GAS		
		Emissions	Emissions	Emissions
		Propane Heaters 1, 2, & 3 (lb/hr)	Propane Heaters 2, & 3 (tpy)	Propane Heaters 1, 2, & 3 (grams/sec)
Antimony	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Barium	4.4E-03	1.6E-05	6.9E-05	2.0E-06
Chromium	1.4E-03	5.0E-06	2.2E-05	6.4E-07
Cobalt	8.4E-05	3.0E-07	1.3E-06	3.8E-08
Copper	8.5E-04	3.1E-06	1.3E-05	3.9E-07
Ethylbenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Fluoride	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	1.8E+00	6.5E-03	2.8E-02	8.2E-04
Manganese	3.8E-04	1.4E-06	6.0E-06	1.7E-07
Mercury	2.6E-04	9.4E-07	4.1E-06	1.2E-07
Molybdenum	1.1E-03	4.0E-06	1.7E-05	5.0E-07
Naphthalene	6.1E-04	2.2E-06	9.6E-06	2.8E-07
Pentane	2.6E+00	9.4E-03	4.1E-02	1.2E-03
Phosphorous	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Selenium	2.4E-05	8.6E-08	3.8E-07	1.1E-08
1,1,1-Trichloroethane	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Toluene	3.4E-03	1.2E-05	5.4E-05	1.5E-06
o-Xylene	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Vanadium	2.3E-03	8.3E-06	3.6E-05	1.0E-06
Zinc	2.9E-02	1.0E-04	4.6E-04	1.3E-05

## TABLE 2. PROPANE HEATERS -- CARCINOGENS

Pollutant	Emission Factor (lb/1,000,000 scf)	NATURAL GAS		
		Emissions	Emissions	Emissions
		Propane Heaters 1, 2, & 3 (lb/hr)	Propane Heaters 2, & 3 (tpy)	Propane Heaters 1, 2, & 3 (grams/sec)
Arsenic	2.0E-04	7.2E-07	3.2E-06	9.1E-08
Benzene	2.1E-03	7.6E-06	3.3E-05	9.5E-07
Beryllium	1.2E-05	4.3E-08	1.9E-07	5.4E-09
Cadmium	1.1E-03	4.0E-06	1.7E-05	5.0E-07
Chromium VI	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Formaldehyde	7.5E-02	2.7E-04	1.2E-03	3.4E-05
Nickel	2.1E-03	7.6E-06	3.3E-05	9.5E-07
Benzo(a)pyrene	1.2E-06	4.3E-09	1.9E-08	5.4E-10
Benz(a)anthracene	1.8E-06	6.5E-09	2.8E-08	8.2E-10
Benzo(b)fluoranthene	1.8E-06	6.5E-09	2.8E-08	8.2E-10
Benzo(k)fluoranthene	1.8E-06	6.5E-09	2.8E-08	8.2E-10
Chrysene	1.8E-06	6.5E-09	2.8E-08	8.2E-10
Dibenzo(a,h)anthracene	1.2E-06	4.3E-09	1.9E-08	5.4E-10
Indeno(1,2,3-cd)pyrene	1.8E-06	6.5E-09	2.8E-08	8.2E-10
Total PAHs	1.1E-05	4.1E-08	1.8E-07	5.2E-09

Notes: Emissions based on each propane heaters operating at 1,200 cu. ft. hr.

Emissions based on 8,760 hours/year of operation for each dryer.

Source: AP-42 Tables 1.4-3 and 1.4-4, 7/98.

## TOXIC AIR POLLUTANT EMISSION INVENTORY

### TABLE 1. NON-CARCINOGENS

Pollutant	Max. Hourly Emissions (lb/hr)	Screening	Modeling? (Y/N)	Emissions (tons/yr)
		Level (lb/hr)		
Antimony	5.47E-03	3.3E-02	N	2.39E-02
Barium	2.80E-03	3.3E-02	N	1.22E-02
Chromium	9.20E-04	3.3E-02	N	3.99E-03
Cobalt	6.27E-03	3.3E-03	Y	2.75E-02
Copper	1.86E-03	6.7E-02	N	8.11E-03
Ethylbenzene	6.62E-05	2.9E+01	N	2.90E-04
Fluoride	3.88E-02	1.67E-01	N	1.70E-01
Hexane	5.20E-02	1.2E+01	N	2.28E-01
Manganese	3.13E-03	3.33E-01	N	1.37E-02
Mercury	2.96E-04	3.E-03	N	1.29E-03
Molybdenum	8.51E-04	6.67E-01	N	3.70E-03
Naphthalene	1.19E-03	3.33E+00	N	5.21E-03
Pentane	7.51E-02	1.18E+02	N	3.29E-01
Phosphorous	9.85E-03	7.E-03	Y	4.31E-02
Selenium	1.44E-03	1.3E-02	N	6.31E-03
1,1,1-Trichloroethane	2.67E-04	1.3E+02	N	1.08E-03
Toluene	6.53E-03	2.5E+01	N	2.86E-02
o-Xylene	1.28E-04	2.9E+01	N	4.97E-04
Vanadium	3.33E-02	3.0E-03	Y	1.45E-01
Zinc	3.09E-02	6.67E-01	N	1.36E-01

### TABLE 2. CARCINOGENS

Pollutant	Max. Hourly Emissions (lb/hr)	Screening	Modeling? (Y/N)	Emissions (tons/yr)
		Level (lb/hr)		
Arsenic	1.38E-03	1.5E-06	Y	6.04E-03
Benzene	2.83E-04	8.0E-04	N	1.18E-03
Beryllium	2.88E-04	2.8E-05	Y	1.26E-03
Cadmium	3.20E-04	3.7E-06	Y	1.37E-03
Chromium VI	2.58E-04	5.6E-07	Y	1.13E-03
Formaldehyde	3.65E-02	5.1E-04	Y	1.58E-01
Nickel	6.24E-05	2.7E-05	Y	2.66E-04
Benzo(a)pyrene	3.47E-08	2.0E-06	N	1.52E-07
Benz(a)anthracene	4.23E-06	NA	NA	1.85E-05
Benzo(b,k)fluoranthene	1.59E-06	NA	NA	6.93E-06
Chrysene	2.53E-06	NA	NA	1.10E-05
Dibenzo(a,h)anthracene	1.79E-06	NA	NA	7.79E-06
Indeno(1,2,3-cd)pyrene	2.26E-06	NA	NA	9.88E-06
Total PAHs	1.22E-05	2.0E-06	Y	5.34E-05



# HAPs Inventory

Pollutant	Emissions (tons/yr)
Arsenic	6.04E-03
Benzene	1.18E-03
Beryllium	1.26E-03
Cadmium	1.37E-03
Ethylbenzene	2.90E-04
Formaldehyde	1.58E-01
Chromium	1.13E-03
Lead	1.18E-04
Mercury	1.29E-03
1,1,1 - Trichlorethane (Methyl Chloroform)	1.08E-03
Naphthalene	5.21E-03
Nickel	2.66E-04
Xylene	4.97E-04
Selenium	6.31E-03
Toluene	2.86E-02
Phosphorus	4.31E-02
POM	1.98E-06
Dichlorobenzene	2.70E-05
Hexane	4.05E-02
<b>Total</b>	<b>2.96E-01</b>

Note: Emission Factors for lead, POM, dichlorobenzene and hexane are as follows (i.e., for those HAPs not listed above):

Lead	1.20E-07	lb/gal
	5.00E-04	lb/MMscf
POM	8.82E-05	lb/MMscf
Dichlorobenzene	1.20E-03	lb/MMscf
Hexane	1.8	lb/MMscf

## **6.0 AMBIENT AIR QUALITY IMPACT ANALYSIS**

This section describes the estimated ambient air quality impact from the proposed modification. Air dispersion modeling has been conducted for this facility in order to demonstrate compliance with National Ambient Air Quality Standards (NAAQS) for criteria pollutants in 40 CFR 51. Toxic air pollutants were also evaluated against threshold emissions levels (ELs), and ambient concentrations for those pollutants exceeding their respective ELs were modeled and compared to the Acceptable Ambient Concentrations (AAC) or Acceptable Ambient Concentrations for Carcinogens (AACC) given in the IDEQ's *Rules for the Control of Air Pollution* (IDAPA 58.01.01) Sections 585 and 586, respectively.

Modeling was generally conducted in accordance with EPA's *Guideline on Air Quality Models* and the Idaho Department of Environmental Quality's (IDEQ) *Air Quality Modeling Guideline*. Meteorological data and ambient air boundaries were discussed with and approved by IDEQ modeling representative Kevin Schilling.

A description of the facility is given in Section 6.1. Details of the model input data, including emission unit information, meteorological data, receptor descriptions, and modeling options are given in Section 6.2. A description of the modeling analysis and results are given in Section 6.3.

### **6.1 Facility Description**

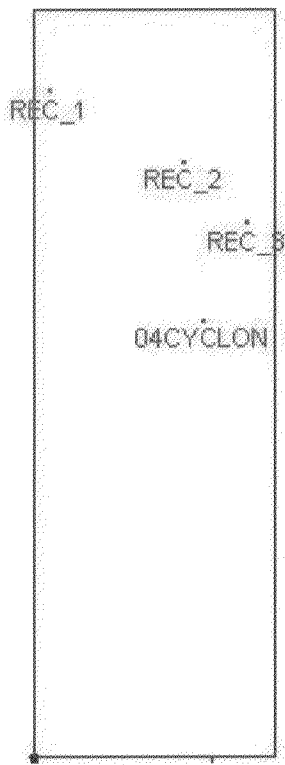
The facility is a potato dehydration plant located approximately seven miles south of Dubois in Clark County, Idaho. The dehydration plant is located in Section 28, Township 9 North, Range 36 East, at Universal Transverse Mercator (UTM) Zone 12 coordinates of 402.4 km east, 4881.8 km north. The terrain surrounding the plant is fairly flat, gently sloping downward from north to south. Elevated terrain is primarily to the north and east of the facility.

Emission units at the facility include the following:

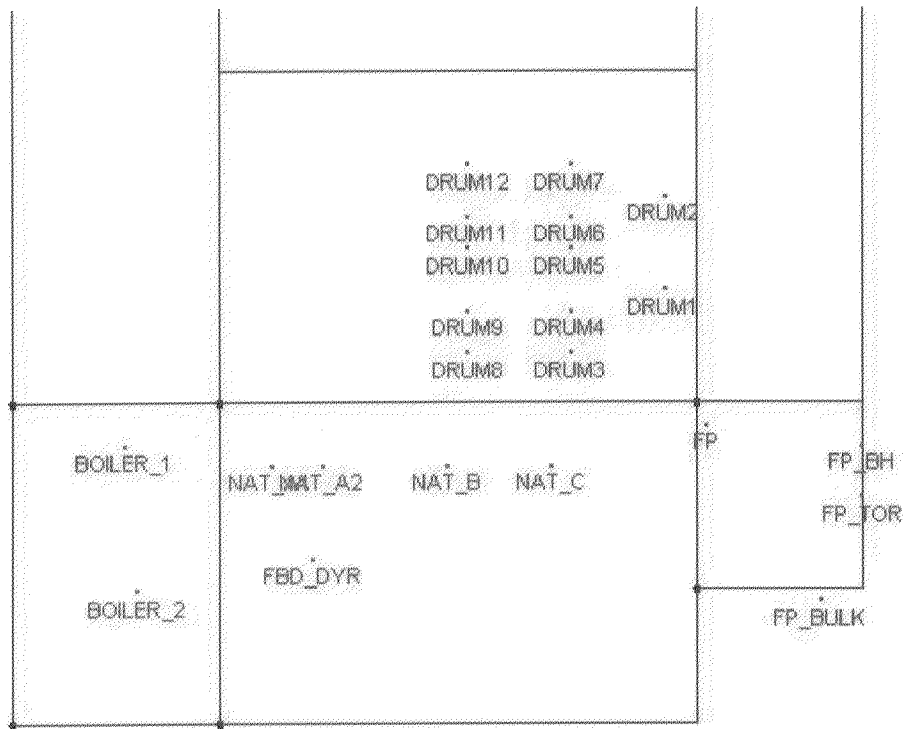
- Two boilers (emission units BOILER\_1 and BOILER\_2)
- Twelve drum dryers (emission units DRUM1 through DRUM12)
- One National Dryer (dehydrator) with four exhaust fans (emission units NAT\_A1, NAT\_A2, NAT\_B, and NAT\_C)
- One fluidized bed dryer (emission unit FBD\_DYR)
- A flake packaging area (including emission units FP, FP\_BULK, FP\_TOR, and FP\_BH)
- Three propane heaters in the receiving area (emission units REC\_1, REC\_2, and REC\_3), and
- One cyclone (emission unit 04CYCLON)

The facility is a source of sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), volatile organic compounds (VOC), carbon monoxide (CO), and particulate matter (PM) from fuel combustion; and a source of SO<sub>2</sub> and PM from the drying process. Total lead emissions from the facility are well below the 0.6 tpy threshold requiring modeling in accordance with Table 1 of IDEQ's modeling guidelines.

A layout of the facility, showing the location of the point sources and buildings is given in Section 2 of this document in Figure 2-1. Figures 6-1 and 6-2 provide more details on the locations of the model sources and buildings for the north and south half of the plant, respectively.



**Figure 6-1 Model Source and Building Layout, North Half**



**Figure 6-2 Model Source and Building Layout, South Half**

Figure 2-2 in Section 2 of this permit application illustrates the ambient air boundary used for air quality modeling purposes in previous permit applications submitted for RDO. For this permit application, RDO has increased the north, east, and south ambient air boundaries approximately 1.5 miles beyond the previous boundaries in each of these directions. This action was approved by IDEQ modeling representative Kevin Schilling. RDO owns a large portion of the property surrounding the facility, and the defined ambient air boundary is well within those limits, and therefore justified.

Consistent with requirements under the national Homeland Security Act, employees are trained to notice and discourage unauthorized access. There are no residences within a mile of the property boundary used in this modeling analysis.

## **6.2 Model Input**

The Industrial Source Complex Short-Term Version 3 Prime (ISCST3) model, version 04269, was used for this analysis. All modeling input and output files are included on the enclosed compact disc.

### 6.2.1 Model Options

Regulatory default modeling options were used, including stack tip downwash, final plume rise, calms processing, and buoyancy-induced dispersion. Since the area within a 3-km radius of the site is unpopulated agricultural land, rural dispersion coefficients were used. Elevated terrain was considered. Averaging times varied by pollutant and included the 1-hour, 3-hour, 8-hour, 24-hour, and annual averaging times. Modeling options are listed below in Table 6-1.

**Table 6-1 Modeling Option Summary**

<b>Parameter</b>	<b>Setting</b>
Regulatory Options	Regulatory Default
Dispersion	Rural, by Concentration
Terrain	Simple and Complex
Flagpole Receptors	None
Averaging Times	1-, 3-, 8-, and 24-hour; and/or annual (varies by pollutant)
Dispersion Output	Concentration ( $\mu\text{g}/\text{m}^3$ )
PRIME Option	Used; though no receptors were in or near the downwash zone

### 6.2.2 Emission and Source Data

Emission units at the facility and stack parameters are listed in Table 6-2.

**Table 6-2 Emission Units and Stack Parameters**

Stack No.	Stack ID	Type	Exit Direction	Height above ground (ft)	Temp. (°F)	Velocity (ft/sec)	Diam. (ft)
1	BOILER 1	Boiler	V	34.92	585	20.6102	6.65
2	DRUM1	Drum Dryer 1	V w/cap	45.58	125	0.0033	3.58
3	DRUM2	Drum Dryer 2	V w/cap	45.58	125	0.0033	3.58
4	DRUM3	Drum Dryer 3	V w/cap	45.58	125	0.0033	3.58
5	DRUM4	Drum Dryer 4	V w/cap	45.58	125	0.0033	3.58
6	DRUM5	Drum Dryer 5	V w/cap	45.58	125	0.0033	3.58
7	DRUM6	Drum Dryer 6	V w/cap	45.58	125	0.0033	3.58
8	DRUM7	Drum Dryer 7	V w/cap	45.58	125	0.0033	3.58
9	DRUM8	Drum Dryer 8	V w/cap	45.58	125	0.0033	3.58
10	DRUM9	Drum Dryer 9	V w/cap	45.58	125	0.0033	3.58
11	DRUM10	Drum Dryer 10	V w/cap	45.58	125	0.0033	3.58
12	DRUM11	Drum Dryer 11	V w/cap	45.58	125	0.0033	3.58
13	DRUM12	Drum Dryer 12	V w/cap	45.58	125	0.0033	3.58
14	FBD_DYR	Fluidized Bed Dryer	H	39.42	110	0.0033	0.0033
15	NAT_A1	National Dryer Fan A1	H	36.00	150	0.0033	0.0033
16	NAT_A2	National Dryer Fan A2	H	36.00	176	0.0033	0.0033
17	NAT_B	National Dryer Fan B	H	36.00	167	0.0033	0.0033
18	NAT_C	National Dryer Fan C	H	36.00	148	0.0033	0.0033
19	FP_BULK	Flake Packaging Bulk Line	V	38.75	Ambient	326.4	0.33
20	FP	Flake Packaging	V	39.59	Ambient	18.6	4.00
21	FP_TOR	Flake Packaging Torit	V w/cap	33.92	Ambient	0.0033	0.25
22	FP_BH	Flake Packaging Drum Negative Air Baghouse	V	37.42	Ambient	108.3	1.53
23	REC_1	Propane Heater 1	V w/cap	35.38	90	0.0033	0.40
24	REC_2	Propane Heater 2	V w/cap	34.58	90	0.0033	0.40
25	REC_3	Propane Heater 3	V w/cap	35.58	90	0.0033	0.40
26	BOILER 2	Boiler #2	V	41.42	355	22.2	1.66
27	04CYCLON	Cyclone	Non-vertical	44.08	Ambient	0.0033	0.0033

All emission units emit from stacks and are therefore point sources. No area or volume sources are included in this modeling. In accordance with the IDEQ modeling guidelines, non-vertical stacks were given a default velocity of 0.001 meters per second (m/sec) and a default diameter of 0.001 meters to eliminate stack tip downwash effects. Vertical stacks with rain caps were given a default stack velocity of 0.001 m/sec. The equivalent circular diameter of rectangular stacks was determined using the equation  $\text{Area} = d^2\pi/4$ , where d is the inside diameter of the stack.

### 6.2.3 Good Engineering Practice Stack Height and Building Downwash

Stacks that are lower than Good Engineering Practice (GEP) height may be influenced by the wake of nearby buildings and structures. Building downwash parameters were determined using

the Building Profile Input Program (BPIP), and these parameters were incorporated into the modeling. Buildings that were included in the downwash calculations are shown in Figure 2-1.

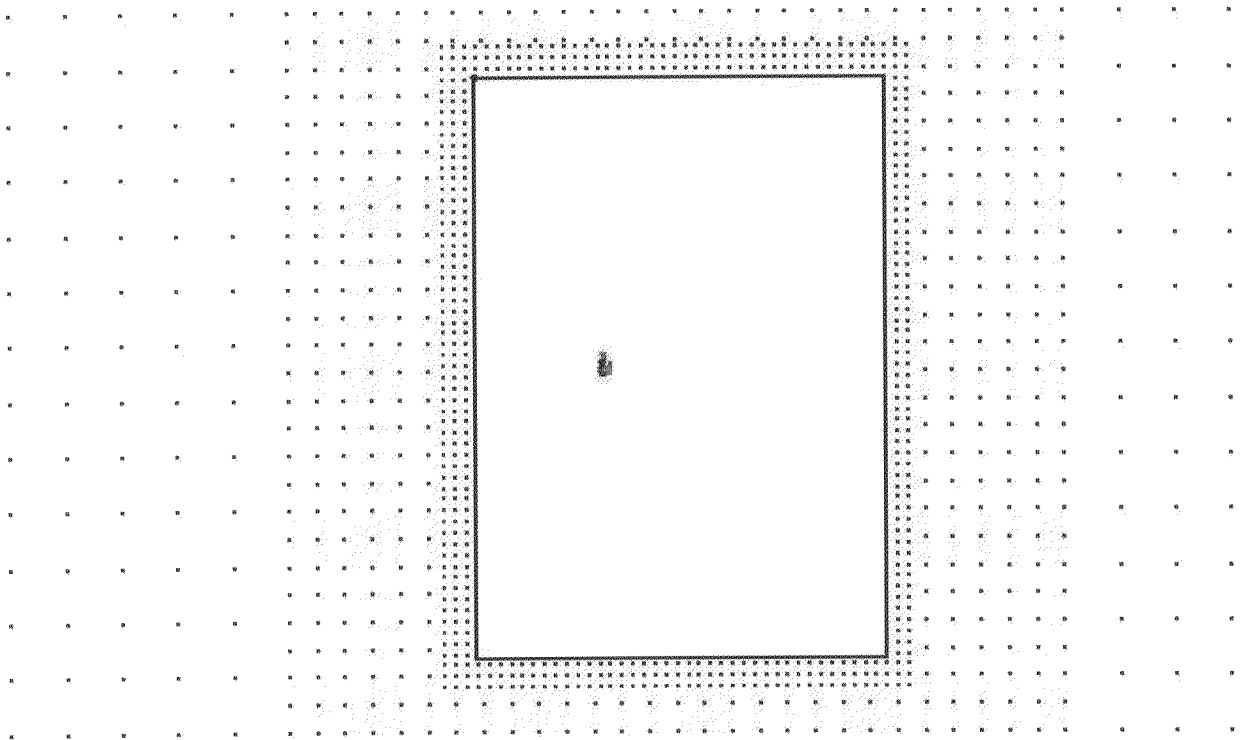
#### **6.2.4 Meteorological Data**

IDEQ has specified the use of the Pocatello Municipal Airport surface data for 1987 – 1991 combined with the concurrent Boise/Air Terminal mixing height data for this area. The surface data station number is 24156, the mixing height station number is 24131. This data has been downloaded from EPA's Support Center for Regulatory Air Models (SCRAM) website and processed using PCRAMMET. The anemometer height was assumed to be 10 meters. As recommended by IDEQ Modeling representative Kevin Schilling, the wind directions from Pocatello were altered by rotating them to be consistent with the terrain forcing in this area near the Continental Divide north of Idaho Falls. The final rotation employed was a 40 degree counterclockwise turn. Modeling for all pollutants was performed with one five year meteorological data file.

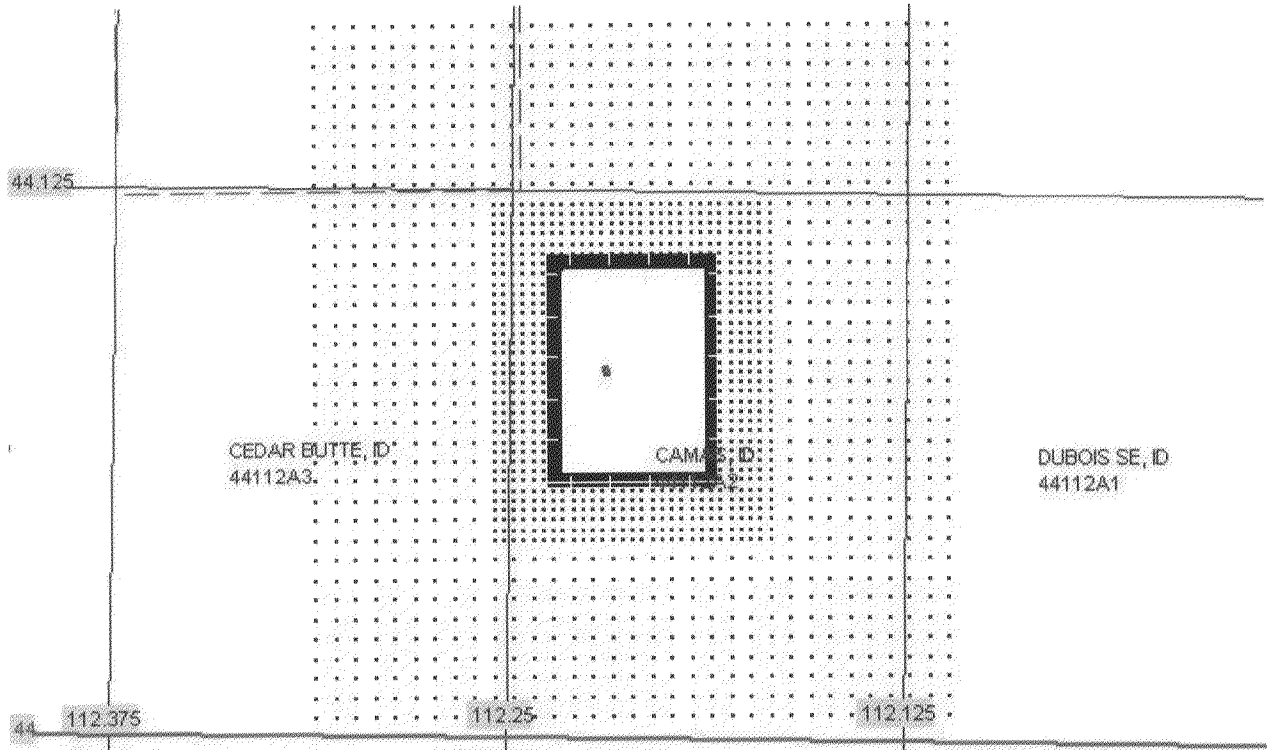
#### **6.2.5 Receptor Network**

The receptor network used for all modeling analyses included 25-meter spacing on and 25 meters beyond the ambient air boundary, 100 meter spacing from 25 meters beyond the boundary out to 200 meters from the boundary, 250 meter grid spacing out to 1500 meters from the boundary, and 500 meter grid spacing to 6000 meters from the boundary. That receptor spacing meets requirements in the IDEQ *Air Quality Modeling Guidelines* since all model predicted maximum impacts occurred on the ambient air boundary within the 25 meter receptor spacing. Figures 6-3 and 6-4 show the model ambient air boundary and inner receptor network, and the outer receptor network, respectively.





**Figure 6-3 Model Ambient Air Boundary and Inner Receptor Network**



**Figure 6-4 Model Outer Receptor Network**

Terrain elevations for all receptors were obtained from United States Geological Survey (USGS) digitized elevation model (DEM) 30 meter resolution data.

### 6.3 Modeling and Results

The objective of the modeling analysis was to determine the maximum ambient concentrations of criteria pollutants for comparison with NAAQS, and the maximum impact of TAPs emitted above IDAPA 58.01.01.585 and 586 emission limits for comparison against their Acceptable Ambient Concentrations (AACs) for 585 TAPs or Acceptable Ambient Concentrations for Carcinogens (AACCs) for 586 TAPs. Ambient air background levels applicable to this area will be added to the air dispersion model output for criteria pollutants to provide comparisons of potential ambient concentrations with facility impacts to the NAAQS. The applicable NAAQS and the associated background concentrations used in this modeling, as prescribed by IDEQ, are shown in Table 6-3. Maximum model impacts reported are more conservative than required innIDEQ modling guidance: second maximum over five years for criteria pollutants and maximum impact over five years for TAPs.

**Table 6-3 National Ambient Air Quality Standards and Background Concentrations**

<b>Pollutant</b>	<b>Averaging Period</b>	<b>NAAQS (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Background Concentration (<math>\mu\text{g}/\text{m}^3</math>)</b>
PM <sub>10</sub>	Annual	50	26
	24-Hour	150	73
NO <sub>2</sub>	Annual	100	17
SO <sub>2</sub>	Annual	80	8
	24-Hour	365	26
	3-Hour	1300	34
CO	8-Hour	10,000	2,300
	1-Hour	40,000	3,600

Table 6-4 summarizes the modeling file names included in the analysis. Details of each run are given in the following sections.

**Table 6-4 Model Files**

<b>Description</b>	<b>Model File</b>	<b>Meteorological Data Year</b>	<b>Results</b>
SO <sub>2</sub> modeling	RDO0506_87_SO2	1987 - 1991	All impacts below NAAQS
NO <sub>2</sub> modeling	RDO0506_87_NO2	1987-1991	All impacts below NAAQS
PM-10 modeling	RDO0506_87_PM10	1987-1991	All impacts below NAAQS
CO refined modeling	RDO0506_87_CO	1987-1991	All impacts below NAAQS
Cobalt modeling	RDO0506_87_Cobalt	1987-1991	All impacts below AACs
Vanadium modeling	RDO0506_87_Vanadium	1987-1991	All impacts below AACs
Arsenic modeling	RDO0506_87_Arsenic	1987-1991	All impacts below AACs
Beryllium modeling	RDO0506_87_Beryllium	1987-1991	All impacts below AACCs
Cadmium modeling	RDO0506_87_Cadmium	1987-1991	All impacts below AACCs
Chromium VI modeling	RDO0506_87_ChrVI	1987-1991	All impacts below AACCs
Formaldehyde modeling	RDO0506_87_Formald	1987-1991	All impacts below AACCs
Nickel modeling	RDO0506_87_Nickel	1987-1991	All impacts below AACCs
PAH modeling	RDO0506_87_PAHs	1987-1991	All impacts below AACCs

### 6.3.1 SO<sub>2</sub> Modeling

The facility's SO<sub>2</sub> sources were modeled for the 3-hour, 24-hour, and annual averaging times. The results, the maximum annual average concentration predicted, and the sixth maximum over five years for all shorter averaging periods, are summarized in Table 6-5 below. The appropriate background concentrations have been added to determine compliance with NAAQS.

**Table 6-5 SO<sub>2</sub> Modeling Results**

	<b>Maximum Modeled Impacts (µg/m<sup>3</sup>)</b>		
	<b>Annual</b>	<b>3-hour</b>	<b>24-hour</b>
<b>Maximum impact µg/m<sup>3</sup></b>	2.09	62.8	15.0
<b>Background µg/m<sup>3</sup></b>	8	34	26
<b>Maximum Ambient Concentration µg/m<sup>3</sup></b>	10.09	96.8	41.0
<b>NAAQS (µg/m<sup>3</sup>)</b>	80	1300	365
<b>Max Ambient as % of NAAQS</b>	12.6%	7.5%	11.2%

The maximum impacts occur within the 25-meter grid, on the west boundary NNW of the plant for the short term averaging periods, and on the north boundary north of the plant for the annual average period. All impacts are below NAAQS.

### 6.3.2 NO<sub>2</sub> Modeling

The facility's NO<sub>x</sub> sources were modeled for the annual averaging time. All emitted NO<sub>x</sub> is assumed to be converted to NO<sub>2</sub> for this analysis. The results, the maximum annual average concentration predicted, are summarized in Table 6-6 below. The appropriate background concentrations have been added to determine compliance with NAAQS.

**Table 6-6 NO<sub>2</sub> Modeling Results**

	Maximum Modeled Impacts (µg/m <sup>3</sup> )
	Annual
Maximum impact µg/m <sup>3</sup>	3.86
Background µg/m <sup>3</sup>	17
Maximum Ambient Concentration µg/m <sup>3</sup>	20.86
NAAQS (µg/m <sup>3</sup> )	100
Max Ambient as % of NAAQS	20.6%

The maximum impacts occur within the 25-meter grid, on the north boundary north of the plant, and all impacts are below NAAQS.

### 6.3.3 PM-10 Modeling

The facility's PM-10 sources were modeled for the annual and 24-hour averaging times. The results, the maximum annual average concentration predicted, and conservatively the second maximum over five years for the 24-hour averaging period are summarized in Table 6-7 below. The appropriate background concentrations have been added to determine compliance with NAAQS.

**Table 6-7 PM-10 Modeling Results**

	<b>Maximum Modeled Impacts (<math>\mu\text{g}/\text{m}^3</math>)</b>	
	<b>Annual</b>	<b>24-hour</b>
<b>Maximum impact <math>\mu\text{g}/\text{m}^3</math></b>	3.98	56.0
<b>Background <math>\mu\text{g}/\text{m}^3</math></b>	26	73
<b>Maximum Ambient Concentration <math>\mu\text{g}/\text{m}^3</math></b>	29.98	126.0
<b>NAAQS (<math>\mu\text{g}/\text{m}^3</math>)</b>	50	150
<b>% NAAQS</b>	60.0%	84.0%

The maximum impacts occur within the 25-meter grid, on the west property boundary NW or N-NW of the plant. All impacts are well below the NAAQS.

#### 6.3.4 CO Modeling

The facility's CO sources were modeled for the 1-hour and 8-hour averaging times. The results, conservatively the second maximum predicted impact over the five years modeled, are summarized in Table 6-8 below. All impacts are below significance levels; no further CO modeling is required.

**Table 6-8 CO Modeling Results**

	<b>Maximum Modeled Impacts (<math>\mu\text{g}/\text{m}^3</math>)</b>	
	<b>1-hour</b>	<b>8-hour</b>
<b>Maximum <math>\mu\text{g}/\text{m}^3</math></b>	67.5	16.4
<b>Significance Level (<math>\mu\text{g}/\text{m}^3</math>)</b>	2000	500
<b>% Significance</b>	3.4%	3.3%

#### 6.4 Summary

The modeling results indicate that criteria pollutant emissions from this facility will not cause or contribute to any exceedances of the NAAQS. Table 6-9 summarizes the results of the modeling demonstrating NAAQS compliance.

**Table 6-9 Modeling Results Summary**

<b>Pollutant</b>	<b>Averaging Time</b>	<b>Location</b>	<b>Maximum <math>\mu\text{g}/\text{m}^3</math></b>	<b>Backgrd <math>\mu\text{g}/\text{m}^3</math></b>	<b>Total <math>\mu\text{g}/\text{m}^3</math></b>	<b>NAAQS <math>\mu\text{g}/\text{m}^3</math></b>	<b>% NAAQS</b>
SO <sub>2</sub>	Annual	N bndy Nof plant	2.09	8	10.09	80	12.6%
	3-hour	W bndy NNW of plant	62.8	34	96.8	1300	7.5%
	24-hour	W bndy NNW of plant	15.0	26	41.0	365	11.2%
NO <sub>2</sub>	Annual	N bndy Nof plant	3.86	17	20.86	100	20.9%
PM-10	Annual	N bndy Nof plant	3.98	26	29.98	50	60.0%
	24-hour	W bndy NNW of plant	56.0	73	126.0	150	84.0%
CO	1-hour	W bndy NNW of plant	67.5	N/A (insignificant)			
	8-hour	W bndy NNW of plant	16.4	N/A (insignificant)			

## **7.0 DEMONSTRATION OF PRE-CONSTRUCTION COMPLIANCE WITH TOXIC STANDARDS**

Table 7-1 summarizes the TAP emissions and the respective EL thresholds from IDAPA 58.01.01 585 and 586. Non-carcinogens which exceed the EL include cobalt and vanadium. Carcinogens exceeding the EL are arsenic, beryllium, cadmium, chromium VI, formaldehyde, nickel, and total PAHs.

**Table 7-1 TAPs Compared to the EL**

NON-CARCINOGENS				
Pollutant	Max. Hourly Emissions	Screening Level	Modeling?	Emissions
	(lb/hr)	(lb/hr)	(Y/N)	(tons/yr)
Antimony	3.37E-03	3.3E-02	N	1.47E-02
Barium	1.78E-03	3.3E-02	N	7.65E-03
Chromium	5.83E-04	3.3E-02	N	2.51E-03
Cobalt	3.86E-03	3.3E-03	Y	1.69E-02
Copper	1.15E-03	6.7E-02	N	5.03E-03
Ethylbenzene	4.08E-05	2.9E+01	N	1.79E-04
Fluoride	2.39E-02	1.67E-01	N	1.05E-01
Hexane	5.31E-02	1.2E+01	N	2.33E-01
Manganese	1.94E-03	3.33E-01	N	8.47E-03
Mercury	2.96E-04	3.E-03	N	1.29E-03
Molybdenum	5.37E-04	6.67E-01	N	2.32E-03
Naphthalene	7.43E-04	3.33E+00	N	3.23E-03
Pentane	7.67E-02	1.18E+02	N	3.36E-01
Phosphorous	6.07E-03	7.E-03	N	2.66E-02
Selenium	1.44E-03	1.3E-02	N	6.31E-03
1,1,1-Trichloroethane	1.75E-04	1.3E+02	N	6.63E-04
Toluene	4.05E-03	2.5E+01	N	1.78E-02
o-Xylene	8.60E-05	2.9E+01	N	3.06E-04
Vanadium	2.07E-02	3.0E-03	Y	8.96E-02
Zinc	1.93E-02	6.67E-01	N	8.46E-02

CARCINOGENS				
Pollutant	Max. Hourly Emissions	Screening Level	Modeling?	Emissions
	(lb/hr)	(lb/hr)	(Y/N)	(tons/yr)
Arsenic	8.53E-04	1.5E-06	Y	3.73E-03
Benzene	1.99E-04	8.0E-04	N	8.08E-04
Beryllium	2.88E-04	2.8E-05	Y	1.26E-03
Cadmium	3.20E-04	3.7E-06	Y	1.37E-03
Chromium VI	1.59E-04	5.6E-07	Y	6.97E-04
Formaldehyde	2.34E-02	5.1E-04	Y	1.00E-01
Nickel	6.30E-05	2.7E-05	Y	2.71E-04
Benzo(a)pyrene	3.54E-08	2.0E-06	N	1.55E-07
Benz(a)anthracene	2.63E-06	NA	NA	1.14E-05
Benzo(b,k)fluoranthene	1.00E-06	NA	NA	4.34E-06
Chrysene	1.58E-06	NA	NA	6.86E-06
Dibenzo(a,h)anthracene	1.12E-06	NA	NA	4.87E-06
Indeno(1,2,3-cd)pyrene	1.41E-06	NA	NA	6.13E-06
Total PAHs	7.54E-06	2.0E-06	Y	3.30E-05



Consistent with IDAPA 585 and 586 regulations, modeling was conducted for the 24-hour averaging time for the AAC evaluation and the annual averaging time for the AACC evaluation for all TAPs identified as emitted above the IDAPA Emission limits (ELs). The TAPs modeled included the IDAPA 585 non-carcinogens cobalt and vanadium, and the IDAPA 586 carcinogens arsenic, beryllium, cadmium, chromium VI, formaldehyde, nickel, and PAHs. The same model layout, parameters, options, meteorological data, and receptor network described for the criteria pollutant modeling were used for the TAP modeling.

Table 7-2 shows the modeled ambient concentrations which are compared to the AAC or AACC; compliance is demonstrated for all TAPs. All maximum predicted annual average impacts occurred on the north boundary north of the plant, and all maximum predicted 24-hour average impacts occurred on the west boundary NW or N-NW of the plant.

**Table 7-2 TAPs Compared to the AAC or AACC (for those exceeding the EL)**

Non-Carcinogens			
Pollutant	Modeled 24-hour µg/m3	AAC µg/m3	% AAC
Cobalt	0.00344	2.5	<0.1%
Vanadium	0.0183	5.0	0.4%
Carcinogens			
Pollutant	Modeled Annual µg/m3	AACC µg/m3	% AACC
Arsenic	1.00E-04	2.30E-04	43.5%
Beryllium	<1.0E-05	4.20E-03	<0.2%
Cadmium	3.00E-05	5.60E-04	5.4%
Chromium VI	2.00E-05	8.30E-05	24.1%
Formaldehyde	2.65E-03	7.70E-02	3.4%
Nickel	1.00E-05	4.20E-03	0.2%
Total PAHs	<1.0E-05	1.40E-02	<0.1%

## **8.0 PROPOSED PERMIT CONDITIONS**

RDO proposes the following permit conditions in order to demonstrate compliance with NAAQS, NSPS, and to not exceed PSD thresholds.

### **8.1 Throughput Limit**

- The boiler No. 1 high sulfur residual fuel oil throughput shall not exceed 9,119,160 gallons per year.

### **8.2 Scrubber Shutdown, Maintenance, or Malfunction**

- When the boiler No. 1 (main boiler) scrubber is not in operation due to shutdown, maintenance, or malfunction, RDO shall combust fuel with no greater than 0.3% sulfur by weight. When this occurs, the Subpart Db NSPS for particulate matter shall not apply since the standards do not apply during periods of startup, shutdown, or malfunction [40CFR60.43b(g)]. Similarly, the Subpart Db NSPS for sulfur dioxide shall not apply; NSPS allows for affected facilities to combust very low sulfur oil or natural gas when the sulfur dioxide control system is not being operated because of malfunction or maintenance of the sulfur dioxide control system [40CFR60.42b(i)]. If low sulfur fuel is not available, RDO shall contact DEQ for approval of temporary operation of boiler No. 1 without the scrubber in operation.

**Appendix A**  
**Air Dispersion Modeling – Model Source Data**

	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (ft)	Temperature (°C)	Exit Velocity (fps)	Stack Diameter (ft)	PM (lb/hr)	SO2 (lb/hr)	CO (lb/hr)	NO2 (lb/hr)	COBALT (lb/hr)	VANADIUM (lb/hr)	PHOSPHRS (lb/hr)
1	402339	4881756	1497	34.91995	307.22	20.6105	6.649934	21.66	28.6005	5.21009	48.9308	0.00627	0.033101	0.00985
2	402391	4881771	1496	45.58005	51.67	0.003281	3.580052	1.95003	0.01					
3	402382	4881765	1497	45.58005	51.67	0.003281	3.580052	1.95003	0.01					
4	402382	4881775	1497	45.58005	51.67	0.003281	3.580052	1.95003	0.01					
5	402391	4881780	1496	45.58005	51.67	0.003281	3.580052	1.95003	0.01					
6	402382	4881769	1497	45.58005	51.67	0.003281	3.580052	1.95003	0.01					
7	402382	4881778	1497	45.58005	51.67	0.003281	3.580052	1.95003	0.01					
8	402382	4881783	1497	45.58005	51.67	0.003281	3.580052	1.95003	0.01					
9	402372	4881765	1497	45.58005	51.67	0.003281	3.580052	1.95003	0.01					
10	402372	4881769	1497	45.58005	51.67	0.003281	3.580052	1.95003	0.01					
11	402372	4881775	1497	45.58005	51.67	0.003281	3.580052	1.95003	0.01					
12	402372	4881778	1497	45.58005	51.67	0.003281	3.580052	1.95003	0.01					
13	402372	4881783	1497	45.58005	51.67	0.003281	3.580052	1.95003	0.01					
14	402353	4881754	1496	36	65.56	0.003281	0.003281	0.46001	0.08	0.30001	5.50E-01	3.02E-07	8.28E-06	
15	402358	4881754	1497	36	80	0.003281	0.003281	0.46001	0.08	0.30001	5.50E-01	3.02E-07	8.28E-06	
16	402370	4881754	1497	36	75	0.003281	0.003281	0.46001	0.08	0.30001	0.55001	3.02E-07	8.28E-06	
17	402380	4881754	1497	36	64.44	0.003281	0.003281	0.46001	0.08	0.30001	0.55001	3.02E-07	8.28E-06	
18	402406	4881741	1496	38.75	20	326.4009	0.330052	0.12						
19	402395	4881758	1496	39.5899	20	18.59908	4	0.08						
20	402410	4881751	1496	33.91995	20	0.003281	0.25	0.08						
21	402330	4881898	1497	35.37992	32.22	0.003281	0.399934	0.01	0.02	0.1	2.30E-01	1.01E-07	2.76E-06	
22	402345	4881890	1497	34.58005	32.22	0.003281	0.399934	0.01	0.02	0.1	2.30E-01	1.01E-07	2.76E-06	
23	402352	4881883	1497	34.58005	32.22	0.003281	0.399934	0.01	0.02	0.1	0.23	1.01E-07	2.76E-06	
24	402357	4881745	1497	39.41995	43.33	0.003281	0.003281	3.53006	0.09	0.38001	6.70E-01	3.78E-07	1.04E-05	
25	402410	4881756	1496	37.41995	20	108.3005	1.529856	0.18						
26	402340	4881742	1497	41.41995	179.44	22.20144	1.660105	0.05	0.004	0.54001	0.64001	5.60E-07	1.47E-05	
27	402347	4881872	1497	44.08005	20	0.003281	0.003281	0.07						

**Appendix B**  
**Proposed Scrubber Information**

## DESIGN CONDITIONS

### INLET DATA:

	Design	Future
Gas Volume (ACFM)	55,090	55,110
Gas Weight (#/hr)	136,310	136,423
Water Vapor Content (% volume)	8	8
Gas Temperature (° F)	350	350
Gas Pressure (inches WC)	4	4
Wet Molecular Weight (## mol)	29.305	29.318
Gas Density (#/ft3)	0.0412	0.0413
Particulate (lb/hr)	Unknown	Unknown
SO2 (lb/hr)	264	377

### OUTLET DATA:

Gas Volume (ACFM)	42,951	42,955
Gas Weight (#/hr)	143,104	143,120
Water Vapor Content (% volume)	15.1	15.1
Gas Temperature (° F)	123.2	123.2
Gas Pressure (inches WC)	0	0
Wet Molecular Weight (## mol)	28.4	28.4
Gas Density (#/ft3)	0.0555	0.0555
Particulate (gr/dscf)	Unknown	Unknown
SO2 (lb/hr)	26.4	37.7

## OPERATING DATA

### Gas Pressure:

Pressure into scrubber (inches WC)	4
Pressure drop across absorber (inches WC)	4

### Liquid Rates:

Absorber Recycle Flow (GPM)	2170	2170
Absorber Spray Pressure (PSIG)	25	25
Mist Eliminator Flow (GPM intermittent)	35	35
Mist Eliminator Pressure (PSIG)	30	30
Bleed Flow (GPM)	6.8	9.7
Water Evaporation (GPM)	14	14
Lime Slurry @ 20% (GPM)	3.72	5

### Pumps:

Recycle Pump Head (FT)	150
Recycle Pump Power Consumption (BHP)	110
Recycle Pump Motor Size (HP)	150
Recycle Pump Motor Speed (RPM)	1200
Chemical Feed Pump Head (FT)	70
Chemical Feed Pump Motor Size (HP)	2.5
Bleed Pump Head (FT)	70
Bleed Pump Motor Size (HP)	2.5

## **ABSORBER DESCRIPTION**

- 1. SPRAY ABSORBER-** 3/16" 316L construction with a 317LM inlet, four banks of 316L spray headers, Bete 316 SS ST spray nozzles with stellite tips and two chevron mist eliminators with wash headers. Approximately 9'-6" diameter X 45'-0" tall.
- 2. RECYCLE/ FORCED OXIDATION TANK-** 3/16" and 1/4" thick 316L with 304L stainless steel stiffeners. Approximately 13'-0" diameter X 22'-0" tall. Sized for 8-minute retention.



## **EMISSION GUARANTEE**

When operated in accordance with the Design Conditions and Operating Data specified in this document and the Operating and Maintenance Manual provided, the scrubber will performance will be:

Remove 90% of the inlet SO<sub>2</sub>, have an instantaneous emission of not more than 0.2 pounds per million BTU of heat input.

We are unable to provide guarantees for particulate.

If guarantee tests are not completed within 3 months after start-up of 12 months after shipment, whichever occurs first, this Emission Guarantee shall be deemed fulfilled. This assumes delay is for reasons that are not the fault of ISS

